



SATURDAY, DECEMBER 19, 1874.

Heat Retainer for Locomotive Engines.

Our engravings on this page represent a device for retaining the heat in the tubes of locomotives which has been patented by Messrs. A. V. Denio, E. Rushton and S. A. Hodgman, of Wilmington, Del. The object of this is to prevent the heat from escaping from the tubes of a locomotive and out of the

Fig. 1.

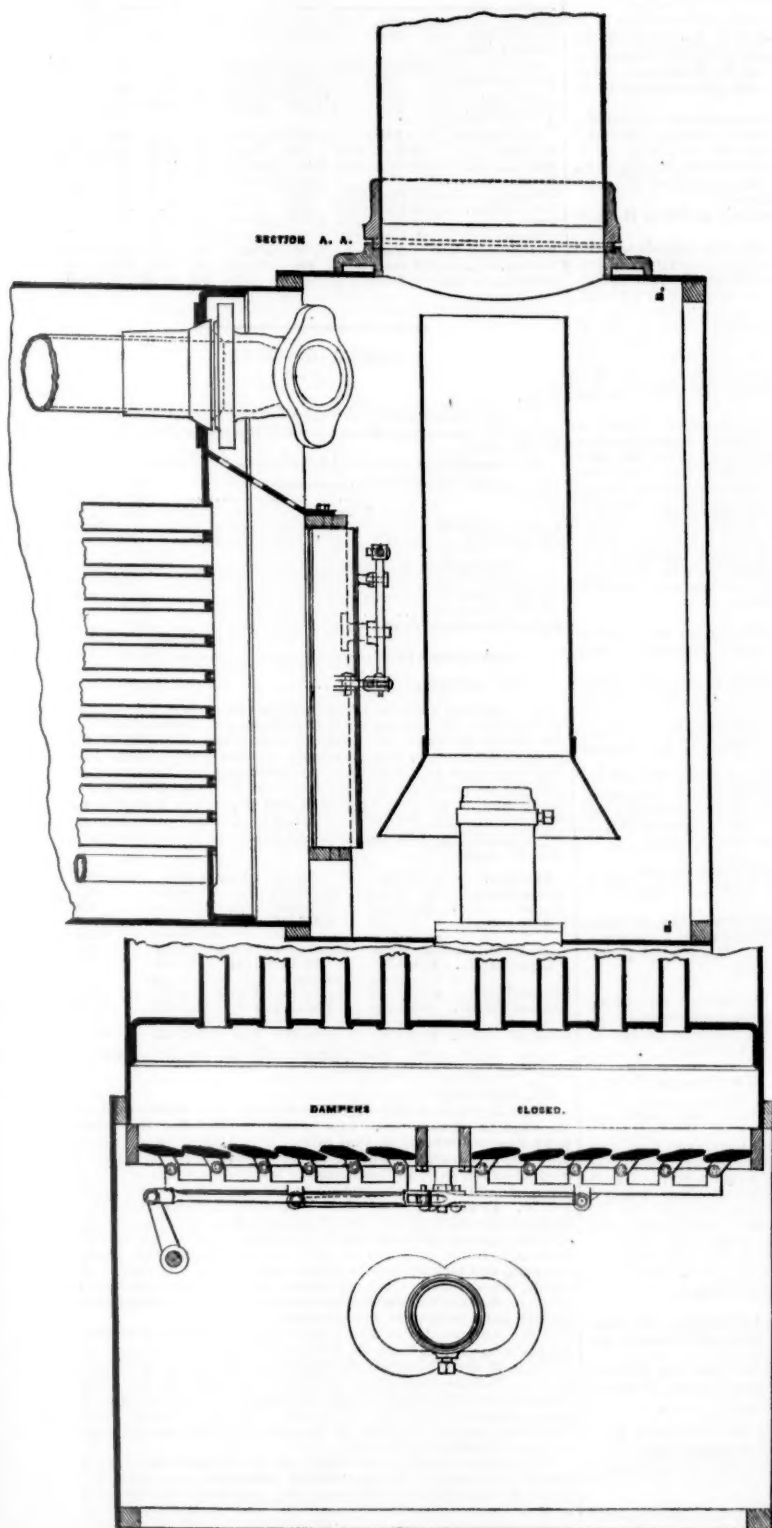


Fig. 3.

HEAT RETAINER FOR LOCOMOTIVES.

Patented by A. V. Denio, E. Rushton and S. A. Hodgman, Wilmington, Del.

smoke stack by placing a system of dampers in front of the tubes which can be opened and closed at pleasure. Fig. 1 represents a longitudinal section of a smoke box, fig. 2 a transverse section, and figs. 3 and 4 horizontal sections. In figs. 1 and 3 the slats or dampers are represented as being closed, and in fig. 2 and 4 they are open. They are operated by a system of levers whose construction is shown very clearly by the engravings and which are connected to the cap by a suitable rod. The arrangement is shown very clearly by the above figures so that but little description is needed. This invention has been applied to locomotives in the Philadelphia, Wilmington & Baltimore Railroad, and, as we are informed by the inventor, has given very good results.

Contributions.

Use of Barometers in Surveying.

New York, December 15, 1874.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I notice in your last number an inquiry from "J. G." in regard to the use of the aneroid barometer in making preliminary surveys. Having recently had some experience in the use of the barometer for that purpose, I will briefly give some of the results. The aneroid was first used for some weeks in the examination of upwards of a hundred miles, but was found for that purpose very unsatisfactory, as the elevation of a point determined by the same aneroid, but at different times,

gave very different results. One of these instruments may be obtained with a small tripod for setting it up, all neatly packed in a leather case so as to be slung over the shoulder when traveling. The "modus operandi" was to have two instruments, one at a fixed station, the other in the field. The readings of the one at the fixed station were taken at regular intervals of say every hour, and sometimes every half hour, while those of the field instrument were taken whenever and wherever the elevation of a point was to be determined. It is desirable never to have the two instruments separated by more than 15 or 20 miles. Both readings were then corrected to a temperature of 32 F. and that of the fixed one so as to agree in time with the observations taken in the field, when the difference of elevation is readily obtained from tables computed for that purpose.

Fig. 2.

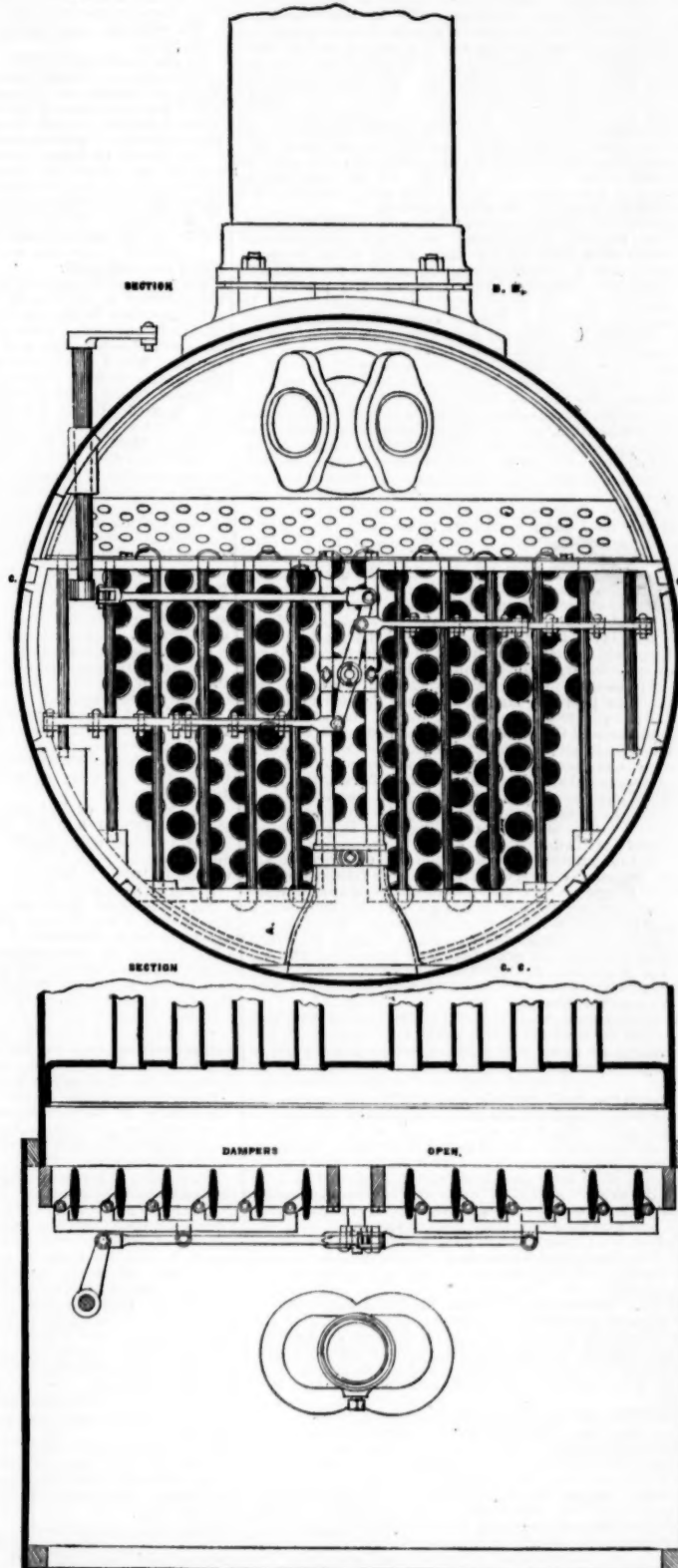


Fig. 4.

was found to vary as much as 140 feet in some cases. Although marked "compensated," they are not; since the reading changes greatly with the temperature, when another instrument kept at a uniform temperature indicates no change in the pressure of the atmosphere. Endeavors were made to find some law of variation for different temperatures, but without success, as there was no uniformity even for the same difference in temperature. As an instrument for the examination of a route requiring any length of time, the aneroid barometer proved a failure, but for the determination of the relative height of points not too far separated, it may be made of much use to the engineer in the field.

The mercurial barometer was next tried, with very satisfac-

The accuracy with which any elevation is determined depends upon the number of observations taken at the point—the greater the number of observations, the greater the accuracy. Single observations at a point, but upon different days, have "checked" within 5 feet and less, but they are not to be relied upon. Several times we "checked" very closely upon known elevations—once where the readings were taken every half hour for a period of six hours, within a single foot at a height of 1,250 feet above tide, with the instruments some 25 miles apart in an air line. By taking distances from maps an approximate profile may be made, giving a very good general idea of the route. In two cases such profiles were made of lines about 150 miles in length. As a means of determin-

ing the feasibility of a route in a mountainous country, or the relative merits of several routes, the barometer, particularly the mercurial, may be made of great service, both as to a saving of time and expense.

E. H.

President Garrett's Views.

After his re-election to the presidency of the Baltimore & Ohio Company, a few days since, Mr. Garrett made the following address to the board of directors:

"It is difficult, my friends, for me to decline to work for the Baltimore & Ohio Railroad Company, especially when called as I have been so repeatedly by your unanimous action. The company has had a singular and interesting history for many years, in being able to develop its great resources and usefulness when surrounded by the difficulties of war and embarrassments and corruptions in many and varied forms, which have existed in the country. We have been happy in being able to illustrate that a railway company can be managed upon principles of sound common sense, of sound business and of integrity, with the highest effectiveness and with proper remuneration to its owners. The result has been one in which our fellow-citizens of Baltimore and of Maryland can have only feelings of great pride and satisfaction. We have not labored merely to accomplish personal objects. These were thrown aside, and, as a consequence, we have had the representatives of the individual stockholders standing in solid phalanx in this Board with those of the State of Maryland and the city of Baltimore in acting liberally and comprehensively, not only for the interests of our own State and city, but for many States, and, as is now generally conceded, largely and grandly for the interests of the people of our whole country.

"Especially has this been a most interesting history as connected with the city of Baltimore. We have seen it grow and prosper year after year, and the main magic of its progress has been the sound and effective management of the Baltimore & Ohio Railroad Company. This company has presented a direct contrast to the general results of financial aid by municipal corporations to railway companies in the United States. The city of Baltimore pays 6 per cent. on the loan for its investment of \$3,250,000 in the Baltimore & Ohio road, and it receives 10 per cent. on this sum, thus making a profit of 4 per cent., viz.: \$130,000 per year for the reduction of the taxation of its citizens. We have an additional feature of great interest in the future, in connection with the action of our lamented colleague, John Hopkins. He labored with us for many years to create the prosperity and development of this company. He held 15,000 shares of its stock, worth to-day more than two and a half millions of dollars, and this he has bequeathed for the establishment of the Johns Hopkins University. Has he not thus given to us even a greater interest in the successful management of the road than we before possessed? This grand foundation provides, with your present rate of dividend, \$150,000 annually for the promotion of learning and intellectual progress. This University will not only be for the people of Baltimore and of Maryland, but for young men who we trust will be attracted from all sections. May we not hope that this great institution will accomplish what Cambridge, and Yale, and Princeton, and Charlottesville, have achieved in the past, and aid largely in the future in furnishing cultivated brain power—scholars and statesmen whose wisdom and patriotism will assist in the good government, elevation and happiness of our people? May we not hope that here will be a center for the intellectual growth, not only of our youth, but of the young men of the South and of the West, and that this institution will attract also young men from the North to enjoy its advantages and benefits? It is pleasant to reflect that the continued successful administration of the affairs of this company will not only accomplish the great good heretofore realized, but will help this great University to do those things which cannot fail to make our city illustrious in connection with the interests of education.

"It is very fortunate at a period when the evil results are shown of financial error; when many other railways, under the efforts of speculators and manipulators of stocks, committed the huge mistake of making not the reasonable and proper sum of capital which just expenditures in construction create, but greatly enlarged and exaggerated bases, on which interest and dividends are expected to be paid—that the action of the Baltimore & Ohio Company furnishes a striking and distinct contrast to their policy. It is a marked fact that besides the public interests to which I have referred, as proprietors, the descendants of many of the founders of the Baltimore & Ohio Railroad are still holders of its stock. It will be interesting to those who may not be aware of the fact to know that years since, when the progress of this company attracted the attention of speculators abroad and at home, foreign capitalists and capitalists of New York attempted to get a large ownership in its stock. Five dollars per share over the market price was then offered, and when five dollars did not tempt the holders, ten dollars a share over the market price, and finally fifteen dollars over the current market price was offered for large quantities of the stock of this company; but the stock was held by those who had no speculative objects—by those who had confidence in the future of the company, and who were interested in carrying out these great lines of policy, and especially in taking care of the interests of the City of Baltimore and of the State of Maryland—and contrary to the usage of Wall street and the money markets of the country, these sales were not made. The propositions were refused. The result has been that this company has never been under the influence of foreign holders, and to day it stands proudly alone as the only great railway corporation of the United States that consistently, persistently, and uniformly devotes its best energies and capacities to the development of the city and State and the territories with which it is connected.

"I, gentlemen, can but appreciate, and I do appreciate very highly that you, representing these interests for which I have so long labored, the State of Maryland and the city of Baltimore and the stockholders of this company, have again—and for the seventeenth year—unanimously called me to this eminent position. I trust that the grand career of usefulness and effectiveness which has distinguished the Baltimore & Ohio Company will be maintained; that it will continue to build up our city; to add to the dignity and honor of our State, and to the wealth, power and resources of our common country."

Transportation in Congress.

In the House on the 8th:

Mr. Houghton, of California, from the Committee on the Pacific Railroad, reported a bill providing that the railroad bridge at Omaha, and the approaches on each side of the river shall be operated as a part of the continuous line of the Union Pacific Railroad, and requiring half-yearly reports to be made of the monthly receipts of tolls and charges for the use of the bridge.

It being suggested that the subject was now before the courts, Mr. Houghton repeated his statement that the bill was not designed to affect any existing litigation. Its purpose simply was to compel the Union Pacific Railroad Company to operate its line of road throughout its entire length as one continuous line, and not to make two transfers at the Missouri River at Omaha. He explained that the bridge has been operated as an independent thing under the name of the Transfer Company, and that all through business on that line is subject to a separate and independent charge for crossing

the river. Freight cars, loaded or unloaded, have to pay \$10 each and passengers 50 cents each for crossing the river, besides the annoyance to both passengers and freight cars in having to change cars twice at this point, and having to get their baggage rechecked. He insisted that the bridge was as much a part of the line of the Union Pacific Railroad as any mile of road between its two termini.

Mr. Hale, of New York, asked who were the nominal owners of the bridge.

Mr. Houghton replied that the bridge was owned by the Union Pacific Railroad Company; that the bonds issued for the construction of the bridge were issued by the Union Pacific Railroad Company, and that all the property of that company is liable for the payment of those bonds. Since the bridge was built it had been operated exclusively by the Union Pacific Railroad Company, though in the care and under the pretense of an independent organization, called a transfer company. No such organization, however, existed in fact, but merely in name. The reason of this was, that the Union Pacific Railroad Company had entered into a contract with the City of Omaha by which the company had received a large subsidy from the city in consideration of making its terminus there.

The morning hour having expired, the bill went over without action.

In the Senate on the 9th:

Mr. Scott, of Pennsylvania, presented a memorial of the Texas & Pacific and Atlantic & Pacific railroad companies, which had been placed in his hands by the President of the Texas & Pacific, praying Congress to aid those companies in the construction of their roads.

Mr. Morrill, of Maine, presented a memorial of merchants, millers, and others, of Georgetown, D. C., asking that the Baltimore & Potomac Railroad Company be compelled to remove the obstruction to the navigation of the Georgetown Channel, caused by the draw of the Long Bridge, and also asking for the improvement of that channel.

The special committee on transportation routes to the seaboard was continued.

Mr. Scott, of Pennsylvania, later in the day, introduced the bill referred to by him in the morning, amendatory of and supplementary to the act to incorporate the Texas & Pacific Railroad Company, and to aid in the construction of its road, approved March 3, 1871, and the act supplementary thereto, approved May 2, 1872, and the act granting lands to aid in the construction of a railroad and telegraph line from the States of Missouri and Arkansas to the Pacific Ocean, approved July 27, 1866. Referred to the Committee on Railroads. The provisions of the bill are the same as that introduced in the House on Monday by Mr. Houghton.

The House then took up the bill which was under consideration yesterday in reference to the railroad bridge at Omaha.

Mr. Houghton, of California, who has charge of the bill, said that since the matter was up yesterday telegrams had been received which went to show that the proceedings now before the United States Court involved the same question as was presented in the bill. If the Court should decide that the bridge was a continuous part of the Union Pacific Railroad there would be no necessity for the proposed legislation, but if the decision was otherwise then there would be. He therefore moved the postponement of the bill until the second Tuesday in February. The motion was agreed to.

In the Senate on the 10th:

Mr. Scott, of Pennsylvania, introduced a bill for the relief of the Allegheny Valley Railroad Company. Referred to the Committee on Claims.

Mr. Wright, of Iowa, gave notice that on Friday, December 18, he would ask the Senate to proceed with the consideration of the bill reported from the Judiciary Committee at the last session, declaring the true intent and meaning of the Union Pacific Railroad acts, approved July 1, 1862, July 2, 1864, and July 3, 1866.

Mr. Edwards, of Vermont, presented a memorial of the Houston, Trinity & Tyler Railroad Company, of Galveston, Texas, praying compensation for railroad iron taken by the military authorities, for the use of the United States, at Galveston, in 1865. Referred to the Committee on Claims.

In the House on the 10th:

Mr. Durnell, of Minnesota, introduced a bill for the extension of time to the Winona & St. Peter Railroad Company to extend its road. Referred.

Mr. Negley, of Pennsylvania, from the Committee on Commerce, reported a bill amendatory of the act for the construction of the St. Louis Bridge across the Mississippi River. Made the special order for Monday, the 14th.

In the House on the 11th:

Mr. Morey, of Louisiana, from the Committee on Public Lands, reported back the bill extending the time for the completion of a railroad in Louisiana from the Texas State line to a point on the Mississippi River opposite Vicksburg.

In the Senate on the 14th:

Mr. Kelly, of Oregon, introduced a bill granting right of way and depot grounds to the Oregon & Central Pacific Railroad Company through the public lands of the United States. Referred to the Committee on Railroads.

Mr. Ingalls, of Kansas, introduced a bill to refer to the Court of Claims and the Supreme Court of the United States, for determination, the rights of the Central Branch of the Union Pacific Railroad Company under the existing laws. He said as a bill of similar nature had already been reported to the Senate he would not ask to have this one referred, but gave notice that when the gentleman from Iowa (Mr. Wright) should call up the bill declaring the true intent and meaning of the Union Pacific Railroad act, on the following Friday, he (Mr. Ingalls) would submit this bill as a substitute.

In the House on the 14th:

Mr. Hurlburt, of Illinois, introduced a bill to aid in the construction of a narrow-gauge railroad from tide-water to St. Louis and Chicago.

Mr. Nesmith, of Oregon, introduced a bill granting right of way and depot lands to the Oregon & Central Pacific Railroad Company.

In the Senate on the 15th:

Mr. Gordon, of Georgia, introduced a bill providing for a survey of Mr. Ralston's proposed inland route of water communication between the Mississippi River and the harbors of the Atlantic.

In the House on the 15th:

Mr. McCrary, of Iowa, introduced a bill for a narrow-gauge railroad from Lake Erie to the Missouri River.

The Railroads of the World.

From *The Engineer* we copy the following statistics of the length of railroads completed in different countries of Europe and the grand divisions of the globe:

Some interesting statistics respecting railways are published in a German newspaper by Dr. Sturmer. The particulars relating to European lines are taken up to a very recent date—31st July, 1874—while those of other lines refer to 1873. From these data it appears that the total lengths of the railways of the world are as follows:

In Europe there are 13.1 kilos. of railway to every 1,000 square kilometres of area; in Asia, 0.23; in Africa, 0.06; in America, 3.07; in Australia, 0.26. With respect to the population, in Europe there are 432 kilos., 258½ miles, per million of inhabitants; Asia 12 kilos., about 7½ miles; Africa, 9 kilos., 5½ miles; America, 1,495 kilos., 927 miles; in Australia, 508 kilos., 315½ miles.

The following shows the length of lines, and their relation

as regards area and population for the different countries of Europe, compiled from the most recent data:

	Kilos.	English miles.
Europe.....	130,588	81,093.28
Asia.....	9,741	6,049.16
Africa.....	1,892	1,119.04
America.....	126,343	78,459.
Australia.....	2,287	1,420.22
Total.....	270,758	169,140.70

COUNTRY.	Date of Returns.	Total Length of Lines Opened.		Length of Lines.			
		Kilos.	English miles.	Per 1,000 sq're kilos. of area.	Per million of population.	Kilos.	English miles.
Belgium.....	1st Jan., 1874	3,370	2,092.77	114	70.79	662	411.16
Great Britain....	Ditto	25,900	16,083.90	82	50.92	814	506.49
Holland and Luxemburg.....	1st July, 1874	1,871	1,161.89	53	32.91	400	250.29
German Empire....	Ditto	24,789	15,393.97	46	28.57	604	370.08
France.....	Ditto	30,143	18,738.88	38	23.60	550	341.55
Switzerland.....	Ditto	1,508	936.47	36	22.36	562	34.9
Austro-Hungarian Empire....	Ditto	16,821	10,269.54	26	16.15	460	285.86
Denmark.....	1st Jan., 1874	910	565.11	24	14.90	510	316.71
Italy.....	1st July, 1874	6,695	4,167.59	23	14.28	262	162.70
Spain.....	Ditto	5,458	3,399.42	11	6.83	338	210.52
Portugal.....	1st Jan., 1874	842	522.88	9.4	5.85	191	119.85
Roumania.....	1st July, 1874	963	598.62	7.9	4.91	229	142.31
Sweden.....	1st Jan., 1874	2,410	1,496.61	5.9	3.66	567	352.10
Turkey.....	1st July, 1874	1,334	828.41	3.8	2.36	127	78.87
Russia.....	Ditto	17,063	10,596.12	3.3	2.05	240	149.04
Norway.....	1st Jan., 1874	496	308.02	1.6	1.00	285	176.89
Greece.....	Ditto	12	7.45	0.2	0.12	8	4.97

ANNUAL REPORTS.

Erie.

The following report has been submitted to the board of directors by President Jewett, covering the year ending September 30, 1874:

The operations of the road for the year were as follows:

Earnings from passengers.....	\$3,705,574.06
Freight.....	9,714,110.92
Coal.....	4,925,531.52
Mail and express.....	915,493.54
Miscellaneous.....	237,788.72
Total earnings.....	\$18,598,898.76
General expenses.....	936,820.23
Transportation Department.....	6,663,826.00
Road Department.....	3,485,662.20
Rolling-stock Department.....	2,477,429.89
Total expenses (72.93 per cent.).....	\$13,563,738.32

Net earnings..... \$5,035,160.44

As compared with the preceding year there is a decrease of \$1,413,707.75, or 7.60 per cent. in earnings; a decrease of \$76,904, or 0.57 per cent., in expenses; a decrease of \$1,336,803.75, or 26.35 per cent. in net earnings. In the report made last year there was an addition to the transportation expenses of \$623,311 for taxes, car mileage and loss on ferry, which is not mentioned in the present report, but is perhaps included in "general expenses," which was not an item of last year's report.

Comparing the Erie earnings and expenses for the two years past we have:

	1873-4.	1872-3.	Inc. or Dec.	Per cent.
Earnings.....	\$3,705,574	\$3,651,554	Inc.	1.5
Passengers.....	13,740,042	15,015,807	Dec.	8.5
Freight.....	1,163,282	1,345,244	Dec.	14.9
Other.....				
Total.....	\$18,598,898	\$20,012,605	Dec.	7.6
Expenses.....	13,563,738	13,640,542	Dec.	0.6
Net earnings.....	\$5,035,160	\$6,371,963	Dec.	26.3
Int. and rentals.....	4,006,900	3,425,278	Inc.	16.9
Surplus.....	\$1,028,260	\$2,946,685	Dec.	65.1

* The report to the State Engineer and Surveyor gives these expenses for 1872-73 as \$14,265,953.

Mr. Jewett says:

"The decrease in the expenses was not in a ratio equal to the decrease in earnings. The service required of the company was not reduced in that ratio. The reduction of earnings was attributable as much to the reduction in the rate of compensation as in the reduction of quantities, without involving, or permitting, a reduction in the expenses to the same extent. In my judgment there is nothing in these comparative results which should have the least tendency to discourage the directors or stockholders of the company; but that, on the contrary, there is much to give confidence in the great strength and almost inexhaustible resources of the road. It needs, simply time, integrity and permanency in its management to develop results which cannot be otherwise than satisfactory to its patrons and proprietors.

"The entire interest and rentals payable by the company for the year ending Sept. 30, 1874, exclusive of that payable on account of the \$15,000,000 of second consolidated mortgage bonds (the final disposition of which was made by Mr. Gray while in London), amounted to \$4,005,900 per annum, in currency, equal to \$393,825 per month. For the ensuing year there will have to be added to the above amount the interest on these \$15,000,000 of bonds.

"On taking charge of the road, on the 14th of July last, I found the service to some extent disorganized. The depressed condition of its business, the persistent attempts to depreciate and discredit the company, and the uncertainty of its management, all had their effect upon the various departments of the service, and rendered the introduction of reforms and economies more difficult than, under ordinary circumstances, would have been realized. But they are being introduced, and are being felt in the results of the working of the road.

"On the 1st of July the floating debt of the company was \$2,344,298.74. On the first of the present month it was \$1,521,015.02, showing a reduction, by payments to that date out of the earnings, of \$823,283.72, which has since been further reduced in the sum of \$100,000, leaving as the present debt the sum of \$1,421,015.02 only.

Satisfactory results have been already reached by the economy practiced and there is no doubt that they can be maintained. For the months of July, August, September and October, with a decrease in earnings there is also a heavy decrease in expenses and an actual increase in net earnings.

The report concludes thus:

"That the business of the country will revive, no one can entertain a serious doubt. It may be delayed by causes not now foreseen, and to remedy which no provision can be made, but a revival must and will take place, and with that revival the traffic and earnings of the company must largely increase.

period since the reorganization, has appeared, some figures and condensations from which we present elsewhere.

The success of the company in its operations since the re-organization, however, is pretty well shown by the following figures, which show the rentals and interest charges becoming due and the net earnings available to meet them from Sept. 1, 1871, to Sept. 30, 1874:

	1871-72.	1872-73.	1873-74.	37 months.
Interest.....	\$1,518,926	\$1,915,221	\$2,726,568	\$6,160,715
Rentals.....	834,462	1,319,190	1,376,174	3,529,826
Net earnings....	\$2,553,388	\$3,238,411	\$4,102,742	\$9,896,541
Deficit.....	1,753,046	1,835,957	1,208,941	4,797,944

This is not an entirely accurate statement for in it we have given only net earnings from working the road, while the company has some other small sources of income; and it has, too, some liabilities besides those for rentals and interest on bonds, which we have not included. No account is taken of the proceeds of new loans, or of expenditures for new construction or equipment; but the net result of the simple operation of the road for the 37 months since the reorganization seems to be a loss of nearly five millions.

If we look for an explanation for this, we have not far to seek. In the first place, as we mentioned above, the road is overloaded with obligations, making its rentals and interest charges extraordinarily burdensome; and in the second place it is so placed that at all times it has to accept rates lower than those of its connections, and in times like these, and generally when business is dull or competition excessive, at rates which are unprofitably low. The traffic of the road is large, and, in spite of the low rates, its profits considerable. As we estimate the mileage of the road, its net earnings per mile for the three years since the organization have been:

	1871-72.	1872-73.	1873-74.
Net earnings....	\$3,002	\$3,406	\$2,118

This is not an adequate income on the sum it would now cost to construct the road, doubtless, and is especially unsatisfactory for the last year; but it is quite as well as is done by many companies, reckoned reasonably prosperous, with quite as good roads. With a reasonably small bonded debt, evidently the Atlantic & Great Western would never have been in trouble.

But as the profit is still extraordinarily small, considering the bulk of the traffic, and even in proportion to the gross receipts, we will do well to see whether this is owing to an exceptionally high cost, necessary or otherwise, of conducting the traffic, or to an exceptionally small price for doing it. The report supplies material for determining this question precisely.

The receipts per ton and per passenger per mile since the reorganization have been:

	1871-72.	1872-73.	1873-74.
Per ton, through.....	1.205	1.040	0.840
" " local.....	1.875	1.560	1.490
Average of all.....	1.624	1.329	1.171
Per passenger, through.....	1.624	1.223	1.024
" " local.....	3.195	2.273	2.215
Average of all.....	2.612	2.238	2.344

This is sufficient to explain the whole, without once glancing at the expenses. Truly it would be an immense traffic which would earn a reasonable profit on a reasonable cost of a railroad at such average rates—especially those of the last year. A very few railroads in the country show lower average passenger receipts; but passenger traffic affords this company less than a fifth of its earnings. But the freight rates are the lowest we have ever seen reported. Low almost without precedent in 1872-73, they fell off nearly 12 per cent. the following year. The average through freight rate of five-sixths of a cent per ton per mile can hardly leave any margin for profit.

Now, the average actual cost of carrying to the company was 1.758 cents per passenger and 0.876 cent per ton per mile, if we assume the proportion of expenses to be the same for each branch of traffic. These figures indicate that the Atlantic & Great Western did its work last year at a cost which has hardly been excelled on any road in the country for cheapness, though the road does not rank among lines of the heaviest traffic. The average working expenses and receipt per ton per mile for the last year reported of the following railroads were as follows:

	Expense.	Receipt.	Profit.
Pennsylvania.....	0.857	1.415	0.558
Erie.....	0.936	1.454	0.518
New York Central & Hudson River.....	0.950	1.570	0.620
Michigan Central.....	0.850	1.300	0.450
Lake Shore & Michigan Southern.....	0.945	1.335	0.390
Atlantic & Great Western.....	0.876	1.171	0.295
Cleveland, Columbus, Cin. & Indianap.....	0.953	1.362	0.409

This is the best criterion of economy of working, with roads somewhat similar in condition of track and bulk of traffic. These are not all equal in these particulars, but the Atlantic & Great Western has the lightest traffic of all, or of all save one. To conduct traffic at a rate so low while really maintaining the condition of road and rolling stock is an achievement which would not have been believed possible a few years ago.

Now a glance at this table is sufficient to show why the Atlantic & Great Western has been so little profitable. It has done a large business for a road in its section, and an increasing business in spite of hard times, and it has done its work at an astonishingly low cost; but it has been compelled to accept an extremely low price for its work, leaving a margin of profit on freight much lower than on any

RAILROAD EARNINGS, NOVEMBER, 1874.

Name of Road.	Mileage.					Earnings.					Earnings per Mile.				
	1874.	1873.	Inc.	Dec.	Per c.	1874.	1873.	Increase.	Decrease.	Per c.	1874.	1873.	Increase.	Decrease.	Per c.
Atlantic & Pacific and leased lines.....	738	799	.....	61	7%	\$406,900	\$397,485	\$9,415	.....	2%	\$551	\$497	10%	.....	10%
Burlington, Cedar Rapids & Minnesota.....	424	415	9	.....	2%	109,536	105,490	4,046	.....	3%	259	254	2%	.....	2%
Central Pacific.....	1,290	1,218	72	.....	6%	1,314,000	1,228,751	85,249	.....	7%	1,019	1,009	1%	.....	1%
Chicago, Danville & Vincennes.....	157	157	.....	.....	.....	71,193	64,230	6,963	.....	10%	453	409	10%	.....	10%
Cleveland, Columbus, Cin. & Ind.....	470	470	.....	.....	.....	336,748	320,266	16,482	.....	5%	716	681	5%	.....	5%
Denver & Rio Grande.....	118	118	.....	.....	.....	28,959	24,971	3,988	.....	16%	245	212	15%	.....	15%
Illinois Central.....	1,109	1,109	.....	.....	.....	642,238	636,039	6,199	.....	0%	579	574	0%	.....	0%
Indianapolis, Bloomington & W'tn.....	344	344	.....	.....	.....	118,868	112,974	5,894	.....	5%	346	328	5%	.....	5%
Indianapolis, Cincinnati & Lafayette.....	179	179	.....	.....	.....	143,900	135,565	8,335	.....	6%	804	757	6%	.....	6%
International & Great Northern.....	438	362	76	.....	20%	173,500	100,236	73,264	.....	73%	379	282	34%	.....	34%
Kansas Pacific.....	761	672	89	.....	13%	275,847	265,218	10,629	.....	4%	363	395	8%	.....	8%
Marietta & Cincinnati.....	284	284	.....	.....	.....	186,995	180,488	6,507	.....	3%	658	636	3%	.....	3%
Michigan Central.....	812	787	25	.....	3%	654,236	607,220	46,986	.....	7%	806	772	4%	.....	4%
Missouri, Kansas & Texas.....	786	786	.....	.....	.....	280,000	300,028	.....	\$20,028	10%	355	383	7%	.....	7%
Mobile & Ohio.....	522	517	5	.....	1%	287,845	236,036	51,809	.....	21%	551	457	21%	.....	21%
Ohio & Mississippi.....	393	393	.....	.....	.....	309,597	265,242	44,355	.....	16%	788	675	16%	.....	16%
St. Louis, Alton & Terre H., Main Line.....	266	266	.....	.....	.....	111,645	89,844	21,801	.....	24%	420	338	24%	.....	24%
St. Louis, Alton & Terre H., Branches.....	71	71	.....	.....	.....	46,787	42,042	4,745	.....	11%	659	592	11%	.....	11%
St. Louis, Iron Mountain & Southern.....	685	685	.....	.....	.....	350,860	309,622	141,238	.....	67%	512	316	62%	.....	62%
Toledo, Peoria & Warsaw.....	237	237	.....	.....	.....	73,802	82,506	.....	8,704	10%	311	349	12%	.....	12%
Toledo, Wabash & Western.....	628	628	.....	.....	.....	4,319	309,606	35,714	.....	9%	642	589	9%	.....	9%
Totals.....	10,732	10,498	234	61	2%	\$6,326,745	\$5,763,477	\$563,268	\$563,268	9%	\$590	\$549	7%	.....	7%
Total increase.....	.....	.....	234	61	2%	.....	.....	.....	.....	9%	.....	.....	.....	.....	7%

RAILROAD EARNINGS, ELEVEN MONTHS ENDING NOVEMBER 30.

Name of Road.	Mileage.					Earnings.					Earnings per mile.				
	1874.	1873.	In.	Dec.	Per c.	1874.	1873.	Increase.	Dec.	Per c.	1874.	1873.	In.	Dec.	Per c.
Atlantic & Pacific and leased lines.....	738	799	.....	61	7%	\$4,588,349	\$4,576,695	\$11,654	.....	0%	\$6,217	\$5,738	\$479	.....	8%
Burlington, Cedar Rapids & Minn.....	424	415	9	.....	2%	1,120,174	1,061,376	58,798	.....	5%	2,642	3,015	.....	373	12%
Central Pacific.....	1,263	1,218	45	.....	3%	13,138,903	12,803,027	335,876	.....	2%	10,403	10,512	.....	109	1%
Cleveland, Col., Cin. & Indianap.....	470	470	.....	.....	.....	3,791,777	4,481,928	.....	\$690,151	18%	8,068	9,536	.....	1,468	15%
Illinois Central.....	1,109	1,109	.....	.....	.....	7,135,540	7,564,634	.....	\$429,094	6%	6,433	6,821	.....	388	5%
Indianapolis, Bloomington & W'tn.....	344	344	.....	.....	.....	1,511,607	1,409,028	101,979	.....	7%	4,394	4,351	43	.....	1%
Indianapolis, Cin. & Lafayette.....	179	179	.....	.....	.....	1,604,948	1,745,989	.....	\$141,041	8%	9,286	9,776	.....	490	4%
Marietta & Cincinnati.....	284	284	.....	.....	.....	1,897,822	1,980,390	.....	\$82,574	4%	6,682	6,973	.....	291	4%
Michigan Central.....	799	787	12	.....	1%	6,974,398	6,877,753	96,645	.....	1%	8,729	8,739	.....	10	0%
Missouri, Kansas & Texas.....	786	786	.....	.....	.....	2,898,025	3,158,718	.....	\$260,693	8%	3,687	4,461	.....	774	17%
Mobile & Ohio.....	522	517	5	.....	1%	2,005,611	2,388,155	.....	\$382,544	16%	3,842	4,619	.....	777	16%
Ohio & Mississippi.....	393	393	.....	.....	.....	3,336,086	3,389,746	.....	\$53,660	1%	8,480	8,627	.....	146	1%
St. Louis, Alton & T. H., Main Line.....	266	266	.....	.....	.....	1,139,866	1,258,608	.....	\$118,742	9%	4,285	4,732	.....	447	9%
St. Louis, Alton & T. H., Branches.....	71	71	.....	.....	.....	806,484	847,971	.....	\$41,487	5%	7,134	7,718	.....	584	7%
St. Louis, Iron Mountain & So.....	685	685	.....	.....	.....	2,877,680	2,318,190	559,490	.....	24%	5,232	5,140	92	.....	1%
Toledo, Peoria & Warsaw.....	237	237	.....	.....	.....	994,125	1,139,178	.....	\$148,055	12%	4,195	4,807	.....	612	12%
Toledo, Wabash & Western.....	628	628	.....	.....	.....	4,734,794	5,317,511	.....	\$82,717	1%	7,540	8,407	.....	867	11%
Totals.....	9,063	8,793	270	3%	.....	60,315,287	62,023,503	\$1,708,216	\$1,708,216	2%	\$6,055	\$7,054	.....	\$999	5%
Total increase or decrease.....	.....	.....	270	3%	.....	.....	.....	.....	.....	2%	.....	.....	.....	.....	5%

other important line, 24 per cent. less than on the Lake Shore, 34 per cent. less than on the Michigan Central, 43 per cent. less than on the Erie, 47 per cent. less than on the Pennsylvania, and 52½ per cent. less than on the New York Central. If the latter road had been compelled to carry freight as cheaply as the Atlantic & Great Western, for the year reported, its gross earnings would have been less by nearly \$5,000,000 and its net earnings by more than \$4,000,000, or more than one-third, during the year ending September 30, 1873. It is proper to note, however, that all the other reports are of older date than the Atlantic & Great Western, and cover a period when it was costlier to work the roads, the New York Central's report covering a period exactly a year earlier; its report for the same year, and probably some at least of the others, will doubtless show a lower receipt per ton per mile, and probably some decrease in the cost.

However that may be, the working of the Atlantic & Great Western during the past year, considered simply as a matter of conducting traffic, deserves to be cited as a distinguished success, though it has occurred coincidentally with other events which will probably lead many people to think it a disastrous failure. With reasonably small yearly liabilities and reasonably large average rates—rates even no higher than those the trunk lines have received heretofore—the results would have been eminently satisfactory to the proprietors, who may at least congratulate themselves that they have had their business managed of late with extraordinary economy.

We have not heard what steps have been taken or are contemplated towards a reorganization of the company, or what classes of bondholders have joined in the application for a receiver. The securities are owned in Europe (England and Holland) almost exclusively, we believe, and the bondholders there will probably dictate the plan of organization of the new company.

Words Wanted.

The construction and development of railroads during the last quarter of a century has also developed a new phraseology, or rather terminology which has been coined by the demand for it and out of such material as existed ready made. Occasionally, however, there is a demand for a word or a phrase, and there is none to supply it. Several cases of this kind have recently presented themselves, of which the following are examples:

Some word is needed which will accurately designate the different systems of brakes which are used on railroad trains and which can be operated by the locomotive runner by the application of power of some kind other than that of physical strength. We refer to such brakes as the atmospheric, vacuum and hydraulic brakes. The words *power brakes*, *continuous* and *automatic* brakes are used, but none of them are sufficiently accurate to serve their purpose well.

Another case is that of the length of a double-track railroad.

In the New York State Engineer's Report on Railroads this term is used in such an ambiguous way that it is quite impossible to determine anything from the records of the length of roads given in it. Thus the "length of road" is given as, say, 6.7 miles; the "length of road laid, single track," 7.6 miles; "length of double track, including sidings," 4.2 miles. From this it is quite impossible to tell how many miles of rails there are of the whole road reduced to miles of single track. Some word or short phrase is needed to express this idea accurately. We have frequently used the word "line" to designate a road between two points, whether with one, two or more tracks. The English, whose railroad nomenclature is generally different from ours, use line to designate a track, as the "up line," the "down line."

Another case is that of designating what is sometimes called a single trip over a road. This term is used in distinction to a round trip, but is not accurate, and its use always incurs danger of misapprehension. What is needed is a term which will designate the passage over a road from one end or point to another, in distinction to what is called a round trip, which is the passage over a road or section of road and back again.

November Earnings.

Of the twenty-one lines reporting for November, all but two show an increase as compared with November of last year, when, however, traffic was in the extremely depressed condition resulting from the panic. The average earnings per mile of the 9,063 miles reporting were \$590, against \$549 in 1873, the increase being about 7½ per cent. For thirteen of these lines we have the returns for November, 1872, which we subjoin:

DECEMBER EARNINGS, 1874 AND 1872.

Name of Road.	Earnings.		Earn. per M.	
	1874.	1872.	1874.	1872.
Atlantic & Pacific.....	\$ 4,690	\$ 436,258	\$ 551	\$ 546
Bur. Cedar Rap. & Minn.....	109,536	98,592	259	257
Central Pacific.....	1,314,000	1,293,957	1,019	1,183
Cleve., Col., Cin. & Ind.....	336,748	381,829	716	829
Illinois Central.....	642,238	696,475	579	628
Kansas Pacific.....	275,847	310,345	363	462
Missouri, Kansas & Texas.....	280,000	330,518	355	402
Mobile & Ohio.....	287,845	344,356	551	666
Ohio & Mississippi.....	309,597	320,954	788	817
St. Louis, Alton & T. H., main line.....	111,645	125,275	420	471
" " " " branches.....	46,787	52,893	659	745
St. Louis, Iron Mt. & So.....	350,860	293,731	512	789
Toledo, Peoria & Warsaw.....	73,802	103,116	311	435
Totals.....	\$4,515,000	\$4,696,272	\$586	\$685

Here we see that there is a large reduction, from \$685 to \$586 per mile, or about 14½ per cent. The average for these thirteen roads this year is almost the same as for the whole twenty-one, and the figures indicate that while the roads have made progress since the panic, they have yet to go about two and a half times as far before they reach the prosperity of 1872.

Of the seventeen roads reporting for the eleven months,

six show an increase in total earnings, but only three in earnings per mile. On the average there has been a decrease of 5½ per cent. in earnings per mile—from \$7,054 to \$6,655.

So large a proportion of the most important lines do not report, that this table has comparatively little significance as an indication of the condition of traffic. We regret it, but cannot help it.

Record of New Railroad Construction.

This number of the RAILROAD GAZETTE has information of the laying of track on new railroads as follows:

Lake Ontario.—Extended westward 5½ miles to the Genesee River, N. Y. **Tyrone & Clearfield.**—Extended from Clearfield southwest 6 miles to Curwensville, Pa. **Longdale Iron.**—Completed (of 3-foot gauge) from the Chesapeake & Ohio Railroad at Peter's Switch to Lucy-Selina Furnace, Va., 6½ miles. **Chippewa Falls & Western.**—Track is laid from Eau Claire, Wis., northwestward 5 miles. **Utah Western.**—Completed from Salt Lake City westward 12 miles.

This is a total of 85½ miles of new railroad, making 1,767 miles completed in the United States in 1874, against 3,507 miles reported for the same period in 1873 and 6,885 in 1872.

THE NORTHERN PACIFIC, over the names of Benj. F. Wade, its attorney, and Benj. F. Potts, the Governor of Montana Territory, has issued an argument, if such it may be called, in favor of its proposition to have Congress provide it the means of completing its road, which proposition was presented in a memorial to Congress last May, and covered by a bill which is now in the hands of the Committee on Railroads of the Senate, and the Committee on Pacific Railroads of the House. This bill provides that the company shall be authorized to issue its 5 per cent. 30-year bonds for \$50,000 per mile on its entire line, completed and incomplete, and turn them over to the United States; that on the completion of sections of its road 20 miles long, it shall deliver to the government its 7.3 per cent. bonds (like those heretofore issued) at the rate of \$50,000 per mile and receive in return \$40,000 of the aforesaid 5 per cent. bonds, having the interest guaranteed by the Government, which latter will hold the remaining \$10,000 as a reserve interest fund. A remarkable feature of the scheme, and one calculated to secure it the favor of the large and widespread army of Northern Pacific bondholders, is a provision that any of the 7.3 per cent. bonds of the company now outstanding may be exchanged for the new bonds bearing the Government guarantee. This is virtually making the Government guarantee 5 per cent. interest on the \$30,000,000 of Northern Pacific bonds now outstanding and in default. The new bonds if the principal were guaranteed would sell nearly at par in gold, or 110 in currency. But the present value of \$1,000 to be paid in thirty years is less than \$250, so that the bond with interest guaranteed by the government which the Northern Pacific bondholder would receive for his present 7.30 \$1,000 bond ought to be worth in the market as much as \$750. But such bonds are worth in the market now, as nearly as we can learn, about \$160. Evidently if this bill is going to pass, those gentlemen who have secured or shall immediately secure a large stock of Northern Pacific at present prices will make a good thing of it, and those journals which took their pay for advertising and "other" services in these "securities" will have strong reasons for advocating the company's new proposition—that is if they have not yet got rid of the bonds.

THE CINCINNATI SOUTHERN RAILROAD and the policy of its trustees is just now the subject of a very lively and sometimes bitter discussion in the Cincinnati papers. An apparently large—and certainly noisy—party holds that a very expensive mistake has been made in providing for a new bridge over the Ohio and a new line to Lexington, and that the cost of that line will be so great that the \$10,000,000 voted by the city will be expended without securing the desired connections southward, rendering a further appropriation necessary. It is claimed that the first effort should have been to build the line southward from Lexington, and that then, after the direct southern line from which so much is expected is completed, it would be time enough to begin the building of a new line from Lexington to the Ohio. The trustees, meantime, continue steadily at work on their own line and do not seem disposed to talk much, even in defense of their own policy.

General Railroad News.

ELECTIONS AND APPOINTMENTS.

—It is stated that Mr. Joseph F. Tucker, now General Freight Agent, will be appointed General Superintendent of the Illinois Central Railroad in place of Mr. A. Mitchell, who has resigned.

—Mr. Charles S. Williams has been appointed Superintendent of the Pensacola & Louisville road, in place of Mr. L. H. Sellers, who has gone to the New Orleans, St. Louis & Chicago.

—Mr. L. H. Meyer has been chosen President of the New Orleans, Mobile & Texas Railroad Company, in place of J. B. Alley, resigned. Mr. C. H. Allen is appointed General Manager, with office in New Orleans.

—Mr. J. H. Devereux, President of the Company, has been appointed Receiver of the Atlantic & Great Western Railroad by the United States Circuit Court, on application of the bondholders.

—At the annual meeting of the Providence & Springfield Railroad Company in Providence, R. I., December 7, the following directors were chosen: Amos N. Beckwith, Milton A. Clyde, Moses B. L. Goddard, James O. Inman, Horace A. Kimball, Edward Pearce, John L. Ross, Albert L. Sayles, Wm. Tinkham. The directors subsequently chose Wm. Tinkham, President; Frank W. Grammont, Treasurer; Jabez C. Knight, Clerk; Orrin S. Gardner, Superintendent.

—The new board of directors of the Pittsburgh, Washington & Baltimore Railroad Company has re-elected the old officers, as follows: President, Mendes Cohen; Treasurer, Charles Donnelly; Secretary, J. B. Washington.

—The directors of the newly organized Frankfort & State Line Railroad Company are: I. N. Davis, S. Ayres, H. Y. Morrison, J. G. Clarke, David Thompson, D. D. Clarke, J. Dawson, J. Stoddard, D. Berryman, M. Maharry, M. Porter, C. Cowgill, B. Gardner. The officers are: President, C. Cowgill, Wabash, Ind.; Vice-President, M. Porter, Eugene, Ind.; Treasurer, H. Y. Morrison, Frankfort, Ind.; Secretary, I. N. Davis, Frankfort, Ind.

—Mr. Trenor W. Park has been chosen President of the Panama Railroad Company in place of Russell Sage, resigned. John R. Marshall and John J. McCullough have been chosen directors in place of Russell Sage and Rufus Hatch, resigned.

—In the foreclosure suit the United States Circuit Court has appointed Mr. J. P. Fisher, of New York, Receiver of the Atlanta & Richmond Air Line Railroad.

—Mr. E. Bacon has been appointed Assistant Superintendent of the Wisconsin Central Railroad, with office in Milwaukee, Wis.

—Mr. R. A. Keazer has been appointed Auditor of the Springfield & Illinois Southeastern Railroad, in place of L. B. Smith, who has gone to the Illinois Central.

—Mr. B. A. Bacon has been appointed Superintendent of the Petersburg Railroad, with office in Petersburg, Va.

—Mr. Thomas S. Tate, Jr., formerly Assistant Superintendent, has been appointed General Superintendent of the Memphis & Little Rock Railroad and will assume all those duties connected with the Superintendent's office which have been heretofore transacted by the President. Maj. J. D. Darden has been appointed Secretary and Treasurer in place of J. W. Goodwin, resigned.

—Mr. R. T. Wilson is now President of the Memphis & Charleston Railroad, succeeding Mr. John D. Rafter. Mr. Joseph Jaques has been appointed General Manager.

—Mr. Wm. Irving, formerly General Freight and Passenger Agent, has been appointed General Superintendent of the Burlington & Missouri River Railroad in Nebraska, in place of C. F. Morse, resigned.

—Mr. P. B. Loomis, President, has been appointed also General Manager of the Fort Wayne, Jackson & Saginaw, and will have immediate charge of the road in place of Mr. W. A. Ernst, Superintendent, who has resigned.

—The officers of the Cairo & St. Louis Railroad are as follows: General Manager, F. E. Canda; Superintendent, J. L. Hinkley; General Freight and Ticket Agent, B. W. Clarke; Auditor, S. E. Harvey; Purchasing Agent, C. L. Ritsma.

—At the annual meeting of the Boston & Henderson Harbor Railroad Company in Adams, N. Y., December 10, the following directors were chosen: S. D. Hungerford, Wm. A. Gilbert, G. W. Bond, D. A. Dwight, Adair, N. Y.; Simon Mather, Elam Tyler, A. J. Armstrong, Henderson, N. Y.; W. D. Allport, Geo. A. Gates, Rodman, N. Y.; John C. Wright, Lucian Clark, Copenhagen, N. Y.; Arnold Webb, South Rutland, N. Y.; Chas. G. Riggs, Turin, N. Y. The board subsequently elected the following officers: President, S. D. Hungerford; Vice-President, John C. Wright; Secretary, D. A. Dwight; Treasurer, G. W. Bond.

—The board of directors of the Baltimore & Ohio Railroad Company has re-elected Mr. John W. Garrett President of the company for the ensuing year, which will be Mr. Garrett's seventeenth year of service in that position.

—At the annual meeting of the Atlantic & Great Western Railroad Company in New York, December 14th, the following directors were elected: J. H. Devereux, W. S. C. Otis, John Todd, James F. Clark, Cleveland, O.; W. H. Upson, George T. Perkins, Akron, O.; Henry E. Parsons, Ashtabula, O.; Reuben Hitchcock, Painesville, O.; Thomas Warnock, Meadville, Pa.; Sobieski Ross, Conduersport, Pa.; James H. Fay, J. Clinton Gray, A. Hegewisch, New York. Messrs. Otis, Clark, Perkins, Warnock and Gray are new directors, replacing Lloyd Aspinwall, Abram S. Hewitt, James B. Hodgskin, Lawrence Wells and W. W. McFarland. The board subsequently re-elected the following officers: J. H. Devereux, President, Cleveland, O.; F. E. Rittman, Treasurer, Meadville, Pa.; Thomas Warnock, Secretary and Auditor, Meadville, Pa.

—As Receiver of the Atlantic & Great Western Railroad, Mr. J. H. Devereux has re-appointed the old officers, as follows: P. D. Cooper, General Superintendent, office Cleveland, O.; F. E. Rittman, Treasurer, office at Meadville, Pa.; Thomas Warnock, Auditor, Meadville, Pa.; Charles Latimer, Chief Engineer, Meadville, Pa.; W. B. Shattuc, General Passenger Agent, office at Cincinnati, O.; and G. G. Cochran, Acting General Freight Agent, Cincinnati, O.

—It is reported that the position of General Superintendent of the Detroit & Milwaukee Railroad, vacated by the appointment of Mr. Watson to the Great Western, has been offered to Mr. W. K. Muir, who retires from the Great Western to make way for Mr. Watson.

—Mr. Thomas Hoops, late General Freight Agent of the Michigan Central Railroad, has been appointed General Manager of the Blue Line, and will take charge January 1. Mr. Hoops has been connected with the Michigan Central 25 years and has held his late position for five years past. He succeeds Mr. J. D. Hayes, of Detroit.

—The position of General Freight Agent of the Michigan Central has been offered to Mr. C. C. Wheeler, now of the Chicago & Northwestern, but that gentleman had not, at our last information, either accepted or declined it.

—At the annual meeting of the Maryland & Delaware Railroad Company in Easton, Md., December 9, the following directors were chosen: William Slaughter, Dr. A. Hardcastle, J. P. Manlove, Samuel Hambleton, J. A. W. Powell, Dr. G. W. Goldsborough, John W. Knotts. The only new director is Mr. Knotts, who succeeds his father, David Knotts, deceased. The board re-elected C. W. Huntington, President, and John W. Scott, Secretary and Treasurer.

—At the annual meeting of the Utica, Chenango & Susquehanna Valley Railroad Company, in Utica, N. Y., Dec. 8, the following directors were chosen: Samuel Sloan, John Brisbin, William E. Dodge, Moses Taylor, Lewis Lawrence, Miles C. Comstock, Daniel Crouse, Hiram Hurlburt, Percy R. Pyne, Eli Avery, George W. Chadwick, Daniel B. Goodwin, Devillo White. Inspectors of Election, Charles E. Barnard, Robert S. Williams, David P. White. At a subsequent meeting of the directors the following officers were elected: President, Samuel Sloan; Vice-President, Lewis Lawrence; Treasurer, A. J. Odell; Secretary, Fred F. Chambers. Executive Committee, Moses Taylor, William E. Dodge, John Brisbin, Lewis Lawrence, D. B. Goodwin.

—Mr. C. A. Wortendyke, President of the New Jersey Midland Company, has been elected a director on the South Mountain Railroad Company in place of Thomas Struble, resigned.

—At the annual meeting of the Richmond & Danville Railroad Company in Richmond, Va., December 9, Col. A. S. Buford was re-elected President with the following directors: A. Y. Stokes, W. T. Sutherland, W. L. Owen, Herman Haupt, Strickland Kneass. The board elected A. Y. Stokes Vice-President. The examining committee of stockholders for next year is composed of William B. Isaacs, Thomas D. Stokes, F. B. Scott, W. F. Garrett and Thomas D. Neal.

—A circular from President Childers of the Great Western Railway Company of Canada announces the following appointments, all of which take effect January 1.

Mr. C. J. Brydges is appointed Special Commissioner, and

all communications for the General Manager will be addressed to him. Mr. Joseph Price, heretofore General Manager, retires from the service of the Company.

Mr. Andrew Watson, now of the Detroit & Milwaukee, is appointed General Superintendent in place of Mr. W. K. Muir, who retires.

Mr. Joseph Metcalf having vacated the office of Treasurer, all communications will be addressed to the Acting Treasurer until a permanent appointment is made.

—Mr. E. Pratt Buell, late of the Mississippi Valley & Western, has been chosen Vice-President, General Superintendent and Chief Engineer of the new Quincy and St. Paul Railway Company. Mr. Alf. Baltzell, late Cashier of the Mississippi Valley & Western, has been appointed Assistant Chief Engineer of the Quincy & St. Paul.

—Col. Thomas Dodamead has finally accepted the position of General Superintendent of the Chesapeake & Ohio Railroad, which was offered him in July last. He will take charge in a few days.

PERSONAL.

—Hon. Dudley S. Gregory, who was a director of the New Jersey Railroad & Transportation Company from almost its first organization until it was merged in the United New Jersey, died at his residence in Jersey City, December 8, in the seventy-fifth year of his age. He was also for several years a director of the Erie and was President of the Associates of the Jersey Company when that corporation existed. He was a man of large wealth, mainly in real estate, and had been prominent in New Jersey politics.

—Mr. E. B. Gibbs resigned his position as Master Mechanic of the Louisville, Cincinnati & Lexington Railroad, December 10, and is for the present residing at Carondelet, Mo.

—Hon. Ezra Cornell, the founder of Cornell University, died suddenly at his residence in Ithaca, N. Y., December 9, at the age of 67 years. Mr. Cornell was for many years active in the establishment and construction of telegraph lines, and was a large owner of such property. He also held a considerable interest in the Utica, Ithaca & Elmira road, with which he parted a few days before his death. He had accumulated a large fortune, much of which he used in endowing the university which bears his name.

—Mr. Woodford has resigned his position as Assistant Superintendent of the Detroit & Milwaukee Railroad.

—Mr. Joseph Price, General Manager; W. K. Muir, General Superintendent, and Joseph Metcalf, Treasurer, of the Great Western Railway of Canada, will retire from their respective positions January 1.

—Capt. W. W. Davies, Superintendent of the Spartanburg & Union road, was severely hurt in an accident on that road a few days since.

—Mr. A. C. Atherton, Train Dispatcher on the Chicago, Rock Island & Pacific road, was married at Des Moines, Ia., December 10, to Miss Gertrude Cole, daughter of Judge Cole, of the Iowa Supreme Court.

RAILROAD LAW.

Responsibility for Baggage by a Company which does not Carry the Owner.

The suit of Thomas E. Fairfax against the New York Central & Hudson River Railroad reached its second trial Dec. 14, before Judge Freedman, in the Superior Court of New York, Trial Term. The plaintiff bought a combination ticket from Montreal to New York, and at Albany started down the river by boat while his baggage came down by the railroad. It remained at the railroad depot for three days, and on the fourth the plaintiff called for it. One piece, a portmanteau, was missing, and he sued the company for its value. On the first trial the jury fixed it at \$700. On appeal, a new trial was ordered, and Judge Freedman dismissed the complaint, deciding that to make the railroad responsible as common carriers, where they neither carried the passenger nor received payment, the plaintiff must show affirmatively that the agent who received the baggage was authorized to do so. If that were not established the defendants were mere bailees, and to make them liable as bailees some act of negligence, such as leaving the baggage-room unguarded, must be shown and shown affirmatively.

Title to Property Acquired by Condemnations.

The following is a report of a case recently decided by the United States Supreme Court:

"No. 196.—Seaboard agt. the Milwaukee & St. Paul Railroad Company; appeals from the Circuit Court of the United States for the District of Minnesota.—Mr. Justice Davis delivered the opinion, holding that where the proceedings to condemn property for the use of a railroad company are shown to be in accordance with the statutes of the State, they confer valid title, and then regularly will not be inquired into collaterally on an action of ejectment. Affirmed."

Responsibility of Contractors.

This is a note of a decision just announced by the United States Supreme Court:

"No. 77.—The Florida Railroad Company agt. Smith et al.; appeal from the Circuit Court of the United States for the Northern District of Florida.—This was a suit on a contract to build a railroad bridge; the defense charged improper and defective construction by the plaintiff. Mr. Justice Field delivered the opinion, reaffirming the principle that error in refusing to admit testimony will not be considered here when it is not shown that the answer given was admissible or what the answer was; held also that if the defect was in the adaptation of the pier to the structure built on it, the contractor is responsible when he saw and gave direction for its construction, because he should not have built the superstructure on a pier unfit to receive it. Reversed."

THE SCRAP HEAP.

The Pig Iron Manufacturers.

The convention of pig-iron manufacturers met in Philadelphia December 10, the trade being represented by a large number of furnace owners. After a long discussion an agreement was adopted providing that production should be decreased to one-half the capacity of the furnaces and kept at that point during the whole of 1875. This agreement is not to be binding until signed by representatives of two-thirds of the furnaces in the United States, exclusive of two months' notice to the Secretary of the American Iron & Steel Association of such intended withdrawal. There is said to be little doubt that the requisite number of signatures to the agreement will be obtained.

New Erie Stop-over Checks.

The *Elmira Daily Advertiser* says: "We have seen a sample copy of the new stop-over check or ticket, and it seems to meet all of the requirements that the most exacting may demand. Its size is about eight inches by three, and is the only limit to the number of stopping places, of which there are eighty printed upon it, being most if not all of the prominent ones on the road and its branches. It resembles somewhat a duplex ticket in general appearance, the center having a ground-work of coffee color, on which is

printed the following important announcement, which is the point of the whole thing:

"**Erie Railway Company.—Stop-over check.** In consideration of the stop-over privilege hereby granted by the Erie Railway Company and accepted by the passenger, this stop-over check is not transferable, and will be good only if used within thirty days from date; otherwise void; nor will this check be accepted for passage if defaced or mutilated. Good for passage from place of destination, as punched, to ———."

"There is a place for the conductor to sign his name, and dates so arranged as to be punched out, in the same manner as are the stations."

"We feel sure that the action of the management in this regard will meet with cordial approval. It is plain, straightforward, and the length of time allowed is more than enough for occasions which ordinarily arise before a person often on the road, and we do not hesitate to say that this action will remove the only real ground for complaint and fault-finding that travelers have urged against the Erie and its management. We trust that the company will find it as much to their interest as we are sure the public will to their accommodation."

Politics and Railroad Officers.

Of course no one in any other State ever heard of such a thing as political opinion affecting the appointment of a railroad official, but it seems that down in Delaware such things are done, for the Millsboro correspondent of the Wilmington Gazette writes as follows:

"On Thursday last the directors of the Frankford & Breakwater Railroad Company held a meeting for the purpose of electing ticket and freight agents, conductors, etc."

"At this place they elected John H. Burton; at Dagaboro, Benjamin Warrington; at Frankford, Robt. S. Long; at Selbyville, Wm. W. Morris; Conductor Charles Ewins. All the above appointments are Republicans. As the majority of the board are Republicans they would not have any Democrats for officers."

Railroad Manufactures.

The machine shop of George E. Fifeid, at South Newmarket, N. H., recently turned out a 12-ton engine for a wooden railroad in Georgia. Mr. Fifeid has heretofore built several engines for this class of roads.

The car shops of Haskell & Barker, at Michigan City, Ind., are filling orders for passenger and freight cars and a number of coal cars.

The Ontario Car Company, at London, Ont., is building 100 gondolas and 200 box cars for the Grand Trunk Company.

The Valley Rolling Mill at Youngstown, O., is running single turn on a contract for 4,600 tons of rails for an Illinois road. The rails are 60 pounds to the yard and 100 tons per day are being turned out.

The plate mills of the Pottstown Iron Company have turned out 600 tons plate iron during the past four weeks.

The Pittsburgh American Manufacturer says: "The Edgar Thomson Bessemer Steel Works, well advanced towards completion, have passed into the control of a limited liability company, entitled 'The Edgar Thomson Steel Company, Limited.' D. McCandless is chairman, and Wm. F. Shinn Secretary and Treasurer."

The Canadian Rail Contracts.

The Board of Public Works of the Dominion of Canada has made the following awards of contracts for steel rails: West Cumberland Steel Company, of England, 5,000 tons, at \$53.53; Mersey Steel Works, of Liverpool, 27,000 tons, at \$54.26; Downhills Steel Works, of Wales, 10,000 tons, at \$54, and Ebbw Vale Steel Company, of Wales, 5,000 tons, at \$53.53 per ton. There were two American tenders, but they were very high, one being \$75 per ton and the other \$82. The rails are all to be delivered in Montreal. Some of these rails are for the Pacific road, but most of them, we believe, are to be used on the Intercolonial.

Cutting Steel Rails Cold.

The Engineer of Nov. 21 says: "The cutting of a file in halves with soft iron was an old lecture experiment. The soft iron formed a disc about 6 inches in diameter, on a lathe spindle, and ran at about 2,000 revolutions per minute. A file held to the edge of the disc was cut in two in about 10 or 15 seconds, the disc being unharmed. The shower of sparks rendered this a brilliant experiment, very popular with a general audience. The principle involved is now being applied to a practical purpose. Mr. Charles White, manager of Sir John Brown & Co.'s Works, Sheffield, has found the cost of cutting off the ends of steel rails cold, in the ordinary way, so enormous that he resolved to try another expedient. For experiment, he last week had an ordinary rail saw put in the lathe and all the teeth cut off. The revolving disc was then mounted on a spindle and driven at nearly 3,000 revolutions per minute. The disc was three feet in diameter, so that its circumferential velocity was about 27,000 feet, or over five miles a minute, or 300 miles an hour. Steel rails forced against the edge of this disc, were easily cut through in three or four minutes each. The rails weighed 65 pounds to the yard. Sparks flew in abundance, and the disk appeared to melt the rail before it; but after cutting five rails the disc itself was not sensibly warm. The experiment was such a complete success that the firm intend putting up a very powerful saw for the purpose of cutting cold steel rails."

Railroad Man's Bed Time.

Punch gives the following conversation with an English railroad man:

"Philanthropist (to railway porter): 'Then what time do you get to bed?' Porter: 'Well, I seldom what yer calls go to bed myself, 'cause 'o the night trains; but my brother as used to work the pints further down the line, went to bed last Christmas, after the accident, and never—' (The train rushes in and the parties rush off)."

Age in Railroad Directors.

A correspondent of an English paper fears "that in many boards the members are much too aged for conducting large commercial concerns like railway companies. If the biographies of the members of the railroad boards were published, I think we should see what a large number were about 80 years of age. A short time since some of the directors of a company in Wales were about 90 years old, and the chairman of one of them is now upwards of 80 years of age."

Longdale Iron Company.

Mr. Charles E. Webster, Chief Engineer, informs us that this company has just completed the Longdale Iron Railroad from Peter's Switch on the Chesapeake & Ohio road to the Lucy-Seina Furnace in Allegheny County, Va. The road is 6 1/2 miles long and of 3-foot gauge.

The Baggage Smasher's Argument.

The Toledo (O.) Democrat gives the following:

"Do you see that trunk, sir?" demanded an indignant traveler of Charley Bender, the courteous Lake Shore baggage agent, yesterday, as he surveyed a demolished packing-box, to which a check was hanging that corresponded with one he held in his hand. "That trunk is ruined, sir, and I demand damages." "Yes, sir," said the smiling Charley; "you ought to have paid for that trunk. People get a tender little trunk like that and pack it up for a hundred miles journey as if they were going to the Pyramids. They put in two or three good-sized hams, a crock or two of apple butter, a sack of double X family flour, ten or fifteen pounds of nails, a few pounds of shot, new castings for a couple of plows, and three or four changes

of clothing. Then they lug it down here at the last minute with the handle burst off one end, and expect it to go through easy enough to allow a horse fly to ride on the end. That's the way your trunks get broken, my dear sir. Thirty-five, sixty-four, Cleveland branch. All right. Good morning." The indignant commercial man had not commenced suit against the company up to the hour of going to press."

OLD AND NEW ROADS.

Northern Central.

Of the two reports submitted by the committee at the recent stockholders' meeting, the first was signed by the two Baltimore members of the committee and is very long, detailing the negotiations with the Pennsylvania Railroad Company as to the lease. These were closed by a declaration that the latter had determined to take no more leases and to make no more guarantees, made by President Scott. Subsequently the Pennsylvania committee made a proposition to the committee to enter into a perpetual agreement with the Northern Central Railroad Company, as follows: "To give the stockholders of the Northern Central Railroad Company, other than the Pennsylvania Railroad Company, a dividend out of the earnings of the road, in no event to exceed 7 per cent., if there should be any earnings after all working and other expenses were paid, and all interest on its bonded debt and liabilities, and any interest it might be called upon to pay, growing out of the indentments of the bonds of other roads."

This was declined. Subsequently all other propositions were withdrawn, and finally the committee agreed to the following organization for the management of the road: that the stock held by the Pennsylvania Railroad Company appoint six directors, and the stock held by other parties than the Pennsylvania Railroad Company six, the Pennsylvania Railroad Company to nominate a President and General Manager of the road, to be elected by the board of directors. This was a mere arrangement of representation between stockholders for present convenience and advantage, and no question involving the rights or interests of stockholders connected therewith.

The committee urges the necessity of an investigation into the expenditure of the last loan of \$2,000,000; also the floating debt and the removal of the workshops to Pennsylvania. Appended to this report is a legal opinion strongly against the validity of the endorsement by the Northern Central of the Baltimore & Potomac and Allegheny Valley bonds.

The other report, signed by the two Philadelphia members of the committee, merely recommended the compromise plan for a new organization as given above.

The retiring directors also presented a report defending their own management, which report was mainly a repetition of arguments presented in former annual reports.

The resolutions finally adopted direct that the general offices remain in Baltimore; instruct the board to present a full exhibit of the actual condition of the company at the annual meeting; authorizing the making of such terminal arrangements in Baltimore as may be needed from time to time; directing that no lease or indentment of bonds be made without approval of the stockholders.

New York & Canada.

The grading of the road north of Port Henry, N. Y., is now about half done. The rock tunnel, 580 feet long, just north of Port Henry has been begun, and work is steadily progressing on the rock-cutting and tunnel at Williamsburgh, the most difficult job on the line. Work is being done as far north as the crossing of the Ausable River, where much piling is required and a long and heavy fill. Another heavy fill at Butter-milk Brook is advancing rapidly. Good progress has been made this season on all the contracts.

Union Pacific.

The government directors recently filed their annual report with the Secretary of Interior. The report represents the road-bed, bridges, and everything pertaining to the road, to be in the very best order. The directors approve the decision of the Secretary of the Interior to patent the land heretofore withheld from the road under the decision of a former Secretary. The directors hold that the time had arrived when the local interest of the Territories through which the road runs demanded that all questions in regard to titles to these lands should be quieted, and the effect of the offer has been most beneficial. Great stress is laid on the importance of the localized management of the road, the directors holding that all officers having in charge the various branches of business pertaining to the operations of the road should reside upon the line, where they can become entirely familiar with the numerous local interests which go to produce business for the road. The directors express the belief that the Government will certainly be reimbursed for the expenditures incurred on account of the road by the 5 per cent. which it will receive, together with what is held under existing laws, and the percentage saved on transportation. This estimate is based upon the report furnished the directors from the War and Post-Office Department, giving the present amount of business which these two departments had over the line of the road.

Indianapolis, Bloomington & Western.

A meeting of the board of directors was held in Indianapolis December 9. There was a long discussion of the company's affairs, but it is understood that no definite conclusion was arrived at, and nothing was done except to pass resolutions declaring that the property is worth much more than the debt, and that as soon as there is a general recovery of business the earnings will meet all claims; that the wisest course for creditors is to avoid all litigation, and that the Executive Committee be instructed to use all possible efforts to induce the acceptance of a funding proposition.

The only result of the meeting thus far has been in an advertisement warning bondholders to avoid a "protracted, expensive and possibly disastrous litigation," and advising them to accept at once the company's proposition for funding coupons. The various bondholders' committees, however, continue their arrangements for enforcing their rights.

Atlantic & Great Western.

In the Court of Common Pleas at Akron, O., December 8, application was made on behalf of W. A. Taylor and W. A. Dunphy, trustees for the bondholders under the first and second mortgages, for the appointment of a Receiver, pending a suit by the bondholders to enforce their rights. The holders of the old first-mortgage bonds on the Ohio section of the road are made co-defendants with the company in the suit. Counsel for the company appeared in court, but made no objections to the application, which was granted, and Mr. J. H. Devereux, President of the company, was appointed Receiver. Mr. Devereux subsequently filed bonds in the required amount (\$10,000) and was placed formally in possession. Similar suits have been or are to be begun in New York and Pennsylvania. The Receiver is authorized to make arrangements for money to pay off any arrears of rental on the leased lines, and to pay all bills for labor and supplies accrued within four months before his appointment.

Baltimore & Ohio.

The directors at their regular meeting in Baltimore last week re-elected Mr. Garrett to the presidency for his seventh year in that office. His salary was fixed at \$4,000, as heretofore, it being understood that he declined any increase. Mr. Garrett himself stated that he did not expect to attend hereafter to the details and general administrative duties, which would be performed by the vice-presidents, but that he

would aid only in directing the general policy of the company and the management of its finance.

Nothing has been done as to the passenger depot in Chicago. In case the exposition building cannot be obtained, a temporary building will be put up at the foot of Madison street.

An arrangement has been made to run a time freight line between Chicago and New York, using the Baltimore & Ohio's Chicago Division from Chicago to Mansfield, O., 297 miles; the Atlantic & Great Western from Mansfield to Salamanca, 269 miles, and the Erie from Salamanca to New York, 413 miles. This is the route heretofore mentioned. Its whole length is 979 miles.

Gulf, Colorado & Santa Fe.

The directors have decided on an award of the contract for the first section of the road, from Galveston, Tex., west to Columbia. The terms of the contract have not yet been made public, but it is to include depot buildings and equipment sufficient to operate the road. Meantime active measures are being taken to secure subscriptions to the stock in Galveston, so that the work may proceed without delay.

The report of General Bragg, Chief Engineer, details the preliminary survey which was made from Galveston west as far as Brenham, the crossing of the Austin Branch of the Central, a distance of 141 miles. From Galveston to Columbia, 54 miles, the line presents few difficulties. A further and more careful survey is recommended.

Nashua & Rochester.

The formal opening of this road took place December 16. The city officers and invited guests from Portland, Worcester and other cities met in Nashua, N. H., where a dinner was given and speeches were made in honor of the event.

Louisville & Nashville.

It is stated that this company in New York, December 16, completed negotiations for a loan of \$2,000,000 for two years at 7 per cent., on pledge of bonds owned by the company.

Maine Central.

Reports have been current of serious disagreements between this company and the Eastern, and it is even rumored that the agreement between the two companies is to be broken. A joint meeting of the Maine Central and Eastern directors was held in Portland, December 15, to consider some proposed changes, but no conclusion was reached.

Cleveland & Pittsburgh.

Notice is given that the third-mortgage bonds due May 1, 1875, will be paid, with interest to date of payment on presentation to the Farmers' Loan & Trust Company in New York at any time after December 15, 1874.

The company has negotiated \$1,200,000 of the new consolidated sinking-fund bonds, the proceeds of which are to be used in redeeming the third-mortgage bonds.

Valley of Virginia.

Messrs. Robert G. Bickle, President of the City Council of Staunton, Va.; J. Randolph Tucker and Wm. McLaughlin, of Lexington, and G. W. Hansborough, of Roanoke, proxies, claiming to represent more than one-tenth of the whole amount of stock, have published a call for a special meeting of stockholders to be held in Staunton, Va., January 12, 1875. The signers of the call state the meeting is for the transaction of business of vital importance to the interests of the company.

The call is undoubtedly caused by the recent stoppage of work, about which there is much excitement among the stockholders resident in the Valley.

Easton & Amboy.

The headings at the Musconetcong Tunnel are stated to be only 200 feet apart, and the foreman in charge expects to have a hole through by the end of the year.

Vermont Central.

The bill to incorporate the holders of the old first-mortgage bonds failed to pass the Vermont Legislature. No further action in that direction can be taken until the Legislature meets again two years hence.

South Carolina.

The mile-long trestle through the Congaree Swamp on the Columbia Branch has been entirely rebuilt. Cypress piles and yellow pine stringers and trestles were used, and it is said to be an unusually excellent piece of work. The new trestles were built under the old and in such manner that the old line was not disturbed until the new one was finished.

Western Railroad Bureau.

A reduction in freight rates from Chicago to Eastern points, which was begun by the Michigan Central, was subsequently authorized by the commissioners at a meeting held in Indianapolis, December 11. There is no change in the tariff from Chicago to interior Eastern points, the new rates being from Chicago to the seaboard cities. They are as follows, the reduction being five cents per 100 pounds on fourth class and grain (first class not being changed); from Chicago to New York:

From Chicago to	In cents per 100 lbs.				Flour and corn-meal in 1-bbls, 50 lbs. and over.	Grain in bulk.
	1st Class.	2d Class.	3d Class.	4th Class.		
New York.....	150	110	85	40	80	40
Boston.....	160	120	90	45	90	45
Portland.....	160	120	90	45	90	45
Baltimore.....	140	100	70	35	75	35
Philadelphia.....	135	100	70	35	77	35

The new rates are made mainly on account of the competition of the Baltimore & Ohio.

It is reported that the Grand Trunk has agreed to enter the combination if certain concessions are made, and that an agreement has been made which that company is willing to sign. The Great Western, which has heretofore declined to sign, alleging its inability to do so as long as the Grand Trunk declined to sign, will probably follow the action of the latter.

The Illinois Central has not yet signed the agreement to abolish passes, and, it is said, will not do so.

Erie.

The removal of the general offices from their present location to the old Erie Building, on the corner of Duane and West streets, in New York, has been commenced. The Grand Opera House building, where the offices now are, has been offered for sale for some time, but it is understood that the company has yet received no satisfactory offer.

A new form of stop-over check has been adopted, and a passenger holding a ticket between two points on the line and desiring to stop at any intermediate point receives a check for the balance of his journey, which is good for 30 days after date.

Yet another suit has been begun by Attorney General Pratt, of the State of New York. The causes for the suit, as alleged in the complaint, are the contract with Hugh J. Jewett to serve as President for ten years, which is said to be unlawful

and therefore void, and the agreements with the New York Central and Pennsylvania companies to fix rates. The Court is asked to enjoin the company from carrying out these agreements, to enjoin Mr. Jewett from acting as President and from drawing pay, and finally to appoint a receiver pending the trial of the suit.

Central of New Jersey.

The new line through Plainfield and between Plainfield and Westfield is completed and trains have begun to run over it. The rails are being taken up from the old line, which will be abandoned altogether.

Fort Wayne, Muncie & Cincinnati.

In the suit of Gaylord & Sons against this company in the United States Circuit Court a decision has been reached. The plaintiffs recovered a judgment of \$12,000 against the company and brought suit to enforce that judgment by forfeiture of the charter of the company. The Court held that such a remedy does not belong to any private party, but that suit for forfeiture of charter can only be brought by the State.

Berks County.

The bankruptcy proceedings having been discontinued according to the agreement made by the creditors, the road was sold at sheriff's sale in Reading, Pa., December 5. The property was purchased by Cyrus G. Derr, representative of the unsecured, and George F. Baer, representing the judgment creditors. The price paid was \$500, and the road was sold subject to the first mortgage of \$1,500,000 and to a lease to the Wilmington & Reading Company of the short section of the road southeast from Reading to High's Farm.

The purchasers have called a meeting of the creditors to be held in Reading, Pa., December 28, to organize a new corporation. The sale simply amounts to a transfer by the stockholders of their interest in the property to the floating-debt creditors.

Chippewa Falls & Western.

The iron is laid from the West Wisconsin at Eau Claire, Wis., northward five miles, and the tracklayers were pushing the work forward and were expected to reach Chippewa Falls, 12 miles, this week.

Canada Southern.

With the new winter time-table there is a considerable increase in train service. Two fast express trains are now run daily each way between Buffalo and Detroit and Toledo, in addition to the local trains.

It is reported that negotiations are in progress with Mr. Cyrus W. Field as representative of certain parties in England for the completion of the Chicago & Canada Southern to Chicago. It is said that the contract will be closed by the end of the year.

Jacksonville, Northwestern & Southeastern.

Among the assets set forth in the schedule of Gibson, Casanova & Co., bankrupts and formerly agents for this company, appears the contract to build the road, which is valued at \$70,011.59.

Lake Ontario.

The track is laid to the Genesee River, 5½ miles beyond the last point noted, and 69¼ miles from Oswego, N. Y. There is some four miles of ballasting yet to be done, and when that is finished and the depot and turn-table ready, trains will run to the river. Until the bridge is finished a ferry-boat will be used to make connections with the Charlotte Branch of the New York Central.

New Jersey Midland.

The engine-house at Ogdensburg, N. J., was destroyed by fire on the night of December 15, and an engine which was in it was badly damaged.

Occidental & Orient Steamship Company.

At a meeting held in New York, December 15, between representatives of this company and the Union and Central Pacific companies a contract was agreed upon for the transportation of freight between San Francisco and China and Japan by steamers to be furnished by this company.

It is claimed that \$6,500,000 out of the \$10,000,000 stock of the company has already been subscribed, mainly in California. An agent of the company is in England to secure steamers.

Burlington, Cedar Rapids & Minnesota.

A train on the Muscatine Division was seized recently to satisfy a claim for \$8,000 back taxes due the city of Muscatine, Ia.

Albany & Susquehanna.

The outside, or six-foot gauge rail on the Nineveh Branch is being taken up and the iron used for a third (4 ft. 8½ in.) rail on the main line between Nineveh and Binghamton.

Dividends.

Dividends have been declared by the following companies:

- Illinois Central, 4 per cent., semi-annual, payable February 1.
- Western Union Telegraph, 2 per cent., quarterly, payable January 15.
- Central Ohio (leased by Baltimore & Ohio), 3 per cent., semi-annual, payable December 30.
- Panama, 3 per cent., quarterly, payable January 15.
- American Express, 3 per cent., semi-annual, payable January 2.
- Wells, Fargo & Co., Express, 4 per cent., semi-annual, payable January 15.
- Central of New Jersey, 2½ per cent., quarterly, payable January 20.
- Boston & Lowell, 2 per cent., semi-annual, payable January 1.
- Fitchburg, 4 per cent., semi-annual, payable January 1.
- Worcester & Nashua, 5 per cent., semi-annual, payable January 1.

Chicago & Southern.

In the motion to dissolve the injunction against this company the Court has decided to dissolve it so far as to permit the Chicago, Danville & Vincennes to take possession under the lease. The Court holds that such action cannot injure the rights of the plaintiff in the suit.

Pennsylvania & Delaware.

The extension to the wharf at Delaware City, Del., is to be begun immediately and the railroad wharf completed. It is said that this work is to be done to provide an outlet for steamship freight in case the ice in the Delaware closes the river at or below Philadelphia.

Joplin & Carthage.

Surveys are being made for a narrow-gauge road from the Joplin lead mines to the Memphis, Carthage & Northwestern road, at Carthage, Mo.

Illinois & St. Louis Bridge.

The St. Louis *Republican* of December 10 says: "Arrangements have been made between the Eastern roads and the Bridge Company for the passing of trains across the bridge on the first of January. It is understood that under the present agreement all the Pennsylvania roads, and others which have held back will come into the arrangement. A meeting was held at the Lindell yesterday afternoon, by the officers representing the Eastern railroads centering here and

the officers of the Depot Company, at which the latter company was authorized to go ahead with the depot building and arrange for the reception of trains."

Richmond & Danville.

At the annual meeting in Richmond, Va., December 9, the stockholders voted to approve the action of the directors as to the issue of \$6,000,000 consolidated mortgage bonds in which are to be funded all the outstanding bonds. The board was instructed to inquire into the expediency of laying a third rail on the North Carolina road from Greensboro to Charlotte. Authority was also given to petition the Legislature for leave to change the gauge from Richmond to Danville, no such change to be made unless directed by a vote of the stockholders. It was also resolved to give each immigrant who may purchase and cultivate 100 acres of land on the line a free 1,000-mile ticket and half rates on stock, furniture and implements for one year.

The number of directors was increased from five to eight, to take effect next annual meeting. Finally it was resolved that the company construct the Roanoke Valley Branch to Chase City, Mecklenburg County, when the county or people contribute \$35,000 therefor; to Boynton when a further contribution of \$35,000 is made, and to Clarksville on a third contribution of \$35,000.

St. Louis, Hannibal & Keokuk.

Iron has been purchased and shipped for the extension of this road from the present terminus at Frankford, Mo., south by east to Bowling Green, about 10 miles. At Bowling Green is the crossing of the Chicago & Alton's Kansas City line.

Pennsylvania-New York Division.

The new cutting through the eastern side of Bergen Hill for the Harsimus Cove freight branch is so far finished that one track is laid and trains have run through. It passes through about one-quarter of the width of the hill and makes the line to the freight docks nearly straight.

Officers of the Central of New Jersey and Pennsylvania Railroad companies and of the City of Elizabeth met recently in Elizabeth to see if some plan could not be devised for doing away with the grade crossing at Broad street in that city. This grade crossing of the Central and Pennsylvania roads is a constant source of delay and danger, and the problem is further complicated by the fact that just at that point the principal street of Elizabeth, on which there is a very large travel, crosses both roads. The meeting resulted in nothing definite.

The new passenger depot in Jersey City is now all in use, although there is yet some finishing work to be done, especially on the front of the ferry-house.

In answer to an application from the Trenton Board of Trade, additional facilities both for freight and passenger business have been promised to that city.

Selma, Marion & Memphis.

It is stated that the bondholders are about to begin proceedings in bankruptcy against this company.

Chesapeake & Ohio Canal.

At the regular meeting of the board in Annapolis, December 9, the President reported that after paying November expenses there would be a balance of \$120,772 on hand. The board appropriated \$55,985 to pay the coupon on the preferred construction bonds which became due July 1, 1861. This makes six coupons, amounting to \$395,910 paid off during the current year.

The board voted to authorize the President to fix the time for closing the canal.

Somerset.

The town of Anson, Me., has voted to raise 5 per cent. of its valuation, or \$27,500 in aid of this company, provided the road crosses the Kennebec River as at present located. The people of the town are trying to raise a further sum of \$26,000 by private subscription. The whole amount is to be invested in the bonds of the company.

Nevada County.

The directors have awarded the contract for building and equipping the road to M. F. Beatty for \$500,000, payable half in cash and half in bonds. The road is about 22 miles long from Colfax, Cal., to Nevada City, and is to be of 3-foot gauge.

McKean & Buffalo.

A force of 600 men is at work on the road in McKean County, Pa., and 15 miles of the line are already graded. Tracklaying will be begun shortly.

Chesapeake & Delaware Canal.

At the general meeting of the stockholders in Philadelphia, December 7, it was resolved to pass the dividend for the past half year in view of the heavy expenditure caused by the break in the canal in the Summer of 1863, and the present decrease in business.

Hanover Branch.

A meeting of the stockholders is to be held in Hanover, Pa. December 24, to consider the question of issuing bonds to the amount of \$300,000, to be secured by mortgage on the road.

Hanover & York.

Tracklaying has been begun from York, Pa., southwest, and the rails are down for some distance.

Vermont & Canada.

A difference of opinion has arisen which is likely to prevent the completion of the sale to the Central Vermont Company. The Vermont & Canada directors decline to submit the question to the Chancery Court as desired by the Central Vermont, for the reason that they do not recognize the right of the Chancellor to make any order or decree in the case except such as is directly within the scope of the mandate from the Supreme Court under which the roads are operated in chancery. The difference appears to be radical, and there is no chance of an agreement.

Portland & Ogdensburg-Vermont Division.

The rails for the five miles from Hyde Park, Vt., to Johnson have arrived and are being laid down as fast as possible.

Connecticut Central.

The contract for building this road has been transferred by H. W. Phelps & Co. to George W. Phelps & Co. The latter have sub-let the masonry for 13 miles of road to John Knox, of Rome, N. Y., eight miles of grading from East Hartford north to James Hendrick, of East Hampton, and four miles from Broad Brook south to J. Martin.

Helena & Iron Mountain.

Efforts are being made to secure the completion of this road from Helena, Ark., north as far as the crossing of the Memphis & Little Rock road, at Forest City, a distance of about 35 miles.

Northern Colonization.

The Toronto (Ont.) *Monetary Times* says: "Mr. Legge, Chief Engineer of the Northern Colonization Railway, reports 75 miles of line graded and ready for the laying of the track. The bridges between Montreal and Grenville are completed, and all between Grenville and Aylmer are in course of construction. Contracts have been made for sixteen locomotives, also for iron bridges for spans from fifty feet upward. Steel rails for the whole line are ordered, and two steamships are

now on the way out loaded with them. Immediately on their arrival the track will be laid from Grenville to Montreal this season, and it is expected trains will be run through to Montreal from Ottawa next October."

New York & Oswego Midland.

The collector of Middletown, N. Y., having attached and advertised for sale for unpaid taxes an engine and pay-car belonging to the road, the United States Circuit Court, on application of the receivers, has issued a temporary injunction to prevent such sale. The collector is also required to show cause why the injunction shall not be made perpetual. The receivers deny the right to tax the company, and this is to be made a test case.

Leavenworth, Lawrence & Galveston.

The United States Supreme Court has appointed the first Monday in February next for the hearing of the appeal in the Osage ceded lands case, involving the title to a large part of the land-grant claimed by this company.

Winona & St. Peter.

A bill is pending in Congress to confirm the title of this company to the lands granted on one section of the line where a deviation was made from the route as surveyed and filed in order to avoid a tract of swamp land.

Little Rock & Fort Smith.

This road was sold in Little Rock, Ark., December 10 under a decree of foreclosure, by order of the United States Circuit Court. It was bought in by representatives of the bondholders for \$1,000,000.

Utah Western.

The track is now laid and trains are running from Salt Lake, Utah, to a point 12 miles west of that city. Work is progressing rapidly beyond the present end of the track.

Railroads in Mexico.

Mexican news of December 3 is as follows:

A contract has been made for the construction of a railroad between the capital and Leon, in the State of Guanajuato. It is reported that British capitalists are interested in the project.

Mr. Plumb's contract with the Executive is nearly completed, and will be presented to Congress for its sanction in a few days.

Dr. Santiago Smith, who is Commissioner of agriculture and internal improvement for the State of Coahuila, Mexico, is now in Texas urging the construction of a railroad from Eagle Pass, Texas, through the Mexican cities of Manchova, Saltillo and on to Durango.

Gilman, Clinton & Springfield.

It is again reported that the Illinois Central people are trying to secure control of this road, and that this is the real object which has been in view throughout all the present litigation.

The McLean Circuit Court has confirmed the report of the master in chancery, that the 14,000 shares of stock held by the Morgan Improvement Company is not legal, bona-fide stock and must be cancelled. An order was entered referring the case back to the master in chancery to take testimony as to the actual cost of building the road and make report to the court. The directors of the company and the Morgan Improvement Company entered an appeal from the decision and will take the case to the Supreme Court.

Kansas Midland.

An injunction has been granted restraining the company and its contractors and employees from further building the road along the public highway on the south side of the Kansas River through Wyandotte County.

Mobile & Northwestern.

Work on this road, which had been suspended for over a year, has, it is said, been resumed with the intention of completing the northwestern portion at once. A large-load of iron has been landed opposite Helena, Ark., and track-laying begun.

Allegheny Valley.

In the United States District Court in Pittsburgh, December 8, the Register in Bankruptcy reported that the necessary number of creditors had signed the agreement of compromise with the company. The Court ordered a final hearing to be had December 15, when the compromise will be confirmed and the bankruptcy proceedings discontinued, unless sufficient objections are presented by dissenting creditors.

Frankfort & State Line.

A company has been organized to build a railroad from Frankfort, Ind., by way of Colfax and Linden to the Illinois line. It is intended as an extension of the Frankfort & Kokomo road. The line proposed is about 55 miles long and the general direction a little south of west.

Miami Valley.

Arrangements have been made to open books for subscription to the stock of this recently incorporated company. Meetings are to be held along the line of the projected road, from Xenia, O., to Cincinnati. The headquarters of the company are at Lebanon, O.

Tyrone & Clearfield.

The track has been laid on the extension from Clearfield, Pa., southwest up the west branch of the Susquehanna to Curwensville, about six miles. It will be, like the rest of the road, operated by the Pennsylvania Railroad Company as part of the Tyrone Division.

Los Angeles & Independence.

The survey has been completed through the Canyon Pass and a practicable route has been found, with a grade of 100 feet to the mile as the maximum, except one short section of 140 feet to the mile.

Northern Pacific.

In the United States Circuit Court in Philadelphia, December 9, application was made on behalf of a number of bondholders of the Northern Pacific Company for an injunction against the trustees and committee of creditors of Jay Cooke & Co. to restrain them from making any payment of dividends or proceeding with the distribution in the State. The complaint made is that the railroad company is insolvent and has refused to present any claims against the estate, and that the bankrupts are liable to the extent of \$16,000,000 upon its bonds. The holders of the bonds desire to come in for their share, and therefore seek to enjoin the distribution until their claims are recognized.

The case was to be reargued before the Court December 14.

A petition to Congress has been actively circulated among the bondholders, in which an appeal is made for the passage of an act to facilitate the collection of the large amount of subscriptions yet unpaid to the capital stock of that corporation. The petition sets forth that about eighteen and a half millions of dollars have been subscribed to the stock, of which not more than \$200,000 has been paid. The list of subscribers shows that they are solvent and responsible parties, with the exception of Jay Cooke & Co. From the report to Congress, made in 1872, it appears that more than \$2,000,000 were then subscribed by some prominent financiers in New York and

elsewhere. It may be remembered that a syndicate was created in 1873 for the marketing of these bonds, by the terms of which 50 per cent. of stock was given to each purchaser of bonds. The par value of the stock was \$100 per share, and, to facilitate the collection of that amount against the holders of the several shares of stock, a bill has been prepared for submission to Congress.

Old Colony.

On the afternoon of December 4 a singular accident occurred near Slade's Ferry, Mass., where the Old Colony Railroad Company is building a bridge across the Taunton River. The piers are to be constructed of iron cylinders, eight feet in diameter and one and a half inches thick, inside of which the men work. One of these cylinders had been sunk successfully, and the second had been sunk about 70 feet, when, about five o'clock in the afternoon, the upper flange of the air-lock, to which the cover was secured, together with the cover, was blown off by the pressure of the air in the cylinder, which at the time was thirty pounds per square inch, as indicated by the pressure gauge. Eight men were in the cylinder at the time, three of whom were killed outright, one fatally injured and one seriously injured. Another was blown out of the cylinder into the air fifteen or twenty feet and came down in the water uninjured. The other two were unhurt. The cover was raised about three feet and fell over on to the deck of the scow alongside. It is stated that the strength of the cylinder at the point where it gave way was estimated to be about eight times the strain then upon it, and the cause of the break is as yet a mystery.

Chicago & Southern.

The suit against this company came into court again December 7 on a motion to dissolve the injunction and permit the Chicago, Danville & Vincennes to take possession under a lease for 99 years which has been executed and which was to take effect December 15. It is claimed that there was no fraud about this lease.

On the other hand Mr. J. B. Brown, the contractor, alleges that the only consideration for the lease is the payment of interest on the \$20 bonds distributed among the defendants in the suit. He also claims that his only security for the payment of the money due him is to retain possession of the road.

Peoria & Rock Island.

In the United States Circuit Court in Chicago, December 7, a number of bondholders were allowed to come into the suit as complainants. The motion for a receiver was postponed until January 4, the defendants agreeing to do nothing prejudicial in the meantime.

Utica, Ithaca & Elmira.

The large interest in this road held by Mr. Ezra Cornell was transferred to W. L. Burt and Joseph Redbourn a few days previous to Mr. Cornell's death.

Springfield & Longmeadow.

The preliminary surveys are completed and the line all located, except the depot in Springfield. It is 7.3 miles long from Springfield to the Connecticut line, and there is little or no heavy work on the line.

Evansville, Owensboro & Nashville.

The recent changes in the board of directors have put the road in the hands of its principal creditors, and it is said the road will be pushed and iron will soon be laid on the extension southwards towards Nashville, 50 miles of which is graded.

Mansfield, Coldwater & Lake Michigan.

The Tiffin (Ohio) Tribune says: "We have reliable information that the Pennsylvania Company will lay the iron on this road to Napoleon, and insure regular trains to that place, as the stockholders make the road-bed and bridges ready for the iron. There is but 400 feet of earth work to do, and some bridges to build, the total cost of which will not exceed \$17,000."

The New York Elevated Railroad.

It is stated that this company is authorized by the original charter to extend its road to Yonkers, and that the veto of the extension bill does not affect this right. The bill passed last winter and lately vetoed was desired by the company only because it authorized certain changes which were desirable. It is the intention of the company to contract for the extension of the road as far as Fifty-ninth street at once, with the view of having it completed by March 1, 1875. Men are now at work putting the existing road in the best condition and putting in additional sidings, which, when completed, will enable trains to run more frequently than at present.

Baltimore & Swann Lake.

The name of this company has been changed to Baltimore, Hampden & Towson town.

Lake Shore & Michigan Southern.

This company has adopted a special tariff from Toledo to points east. The following are the rates per 100 pounds, in cents:

From Toledo to	1st Class.	2d Class.	3d Class.	4th Class.	5th Class.	Dead Weight.
Erie.....	45	35	25	18	15	30
Buffalo.....	50	40	30	18	15	30
Albany.....	100	70	55	30	30	60
New York.....	110	80	65	35	35	70
Boston.....	120	90	65	40	40	80
Philadelphia.....	100	75	57	30	30	60
Baltimore.....	100	75	57	30	30	60
Portland.....	120	90	65	40	40	80
Providence.....	125	95	70	45	45	90

Brunswick & Albany.

Mr. J. de Neufville, the agent of the German bondholders and a director of this company under the organization since the foreclosure, is reported by the *German American Economist* to be about to submit to the bondholders a proposition for leasing the road to a corporation of wealthy business men of Georgia, the Mayor of Albany among them. The terms described are as follows: The bondholders to bind themselves to put the completed part of the line, from Brunswick to Albany in good working order by an expenditure of \$200,000. For this purpose an issue of bonds is to be made, \$50,000 of which the lessee company agrees to take at par. When the road is put in condition, the proposed company will take and work it and pay a rental of \$25,000 the first year, \$30,000 the second, \$35,000 the third, and \$40,000 the fourth and fifth years—making an average of \$34,000 per year. The lessee will bind itself to complete the extension of the road from Albany northward to Chattahoochee River at Eufaula, and use its influence with the State of Georgia to re-assume its guarantee on a part at least of the bonds, (which have a State guarantee which has been repudiated). After the expiration of the five years' lease, the lessee is to have the option to purchase the road for \$900,000, payable in first-mortgage bonds on the whole line from Brunswick to Eufaula, and to issue shares at the rate of \$10,000 per mile, half of which shall be given to the bondholders gratis.

The amount of bonds outstanding is about \$200,000, and the rental would thus be about 1 1/2 per cent. for the five years. The present market price of the bonds is from 7 to 8 gold, in Frankfurt, but to raise the \$150,000 required previous to renting would require an assessment of about 5 1/2 per cent. of the face of the bonds. The eventual price to be paid at the end

of five years would be less than one-third of the face of the present bonds, and it would be paid in bonds on the same road, more valuable than those which now give title by the road only by virtue of the extension which they would cover. It is true, however, that the proposed rental is probably more than the bondholders (or others, we imagine,) are likely to earn with the road; but the rails on it (if they were not old when laid) ought to be worth something like \$800,000.

Report of the Michigan Commissioner.

In addition to the selections in our issue of November 28, we publish the following parts of the report, covering the subjects of "Characteristics of Track" and "Accident to Persons."

CHARACTERISTICS OF TRACK.

Steel Rail.—The various roads report 825.05 miles of steel rail to 4,555.49 of iron, or over fifteen per cent. of the whole. Only a small portion of this lies in this State, however. So far as any opinion is expressed as to the comparative merits of steel and iron in this connection, it is emphatically in favor of steel. The management of the Grand Trunk road say that while that material costs fifty per cent. more than iron, its durability is far greater. (Returns, p. 26), and the Report of the Lake Shore & Michigan Southern Railway declares that "one steel rail will last as long as at least as ten rails of iron." (Returns, p. 105). In the report to this office for 1873 of the Michigan Central, the President of that road says, "From our limited use of steel rail, and with the present amount of traffic, the steel rail will outlive four sets of iron rails such as are now made." (Returns for 1873, p. 7.)

From such testimony alone, it is apparent that our roads cannot afford to lay their tracks with iron, but there are even stronger statements made by competent authority to show the great superiority of steel rail. It is reported (RAILROAD GAZETTE, Vol. VI., p. 65) that at a late annual meeting, President Richard Potter, of the Grand Trunk Railway Company, used the following language: "We have got on our line near Kingston half a mile of steel rails that were laid down in the year 1865. * * * on the most crowded part of our line. Not one single rail of that sixty or seventy tons has been changed, nor is there any appreciable sign of damage or wear and tear, except that the whole surface is smooth. We had those rails carefully examined and measured by a very delicate instrument. There is no sign of any wear of any kind whatever,—none of them have broken,—none of them are in any way touched, except that they have a perfectly smooth and even surface; and this instrument shows that if the wear and tear of the rail continues as it has done for the last seven or eight years, those rails will last for 180 years. I tell you what the instrument shows,—of course you must not suppose that I mean to tell you that they will last that time; but that is the simple fact,—there is no appreciable wear and tear." At the time these remarks were published, the Grand Trunk had 520 miles of steel track, out of 1,377 miles of entire line.

The same paper contains an extract from the report of the Chief Engineer of the Philadelphia & Reading Railroad for the year ending November, 1873, which states that "since September, 1865, 8,374 tons of steel rail have been laid on that road, of which 13 tons, being experimental rail, and not proving satisfactory, were removed. At one of the most trying places in Reading, 41 tons of steel rail were laid in August, 1867, at a point where the life of an iron rail never exceeded four months; and after having done service for six years they were removed in the fall of 1873, having been worn off uniformly to a thinness not considered suitable to the main track. These rails have been placed in sidings where they will do duty for some years. There are now 8,301 tons of steel rail in our tracks, showing that only 19 were removed from causes of either accident, dents, or defective manufacture." In confirmation of such testimony as this is a short paragraph in the Chicago Railway Review of October 17, 1874, page 83, to the effect that for the six years from 1878 to 1873, the European Cologne-Minden Railroad has found that out of all rails laid of Bessemer steel, only six per cent. have been broken from any cause whatever. The paragraph also states that the officers of the Chicago, Burlington & Quincy Railroad, which has 200 miles of steel, report that where the steel rails have been severely tested they seem to outwear twenty of iron.

Weight of Rail.—The weight of rail per yard varies from 35 lbs., in the case of the Mineral Range narrow-gauge track, to about half a mile of 65 lbs. on the St. Clair & Chicago Air Line. The weights reported per yard are as follows: 35, 45, 46, 48, 50, 52, 53, 56, 58, 60, 61 1/2, and 65. The Lake Shore & Michigan Southern, and the Detroit, Monroe & Toledo tracks are laid with rail of 51 1/2 lbs. weight; the Michigan Central, Grand River Valley, Chicago & Canada Southern, Toledo, Canada Southern & Detroit, and Grand Trunk companies use 60-lb. rail, and some other roads are supplied in part with rail of that weight.

Gauge.—The track of all but four of the roads has been laid on the standard gauge of 4 ft. 8 1/2 in. The exceptional roads, comprising one-tenth of all of the main track reported, are the Grand Rapids & Indiana and the Michigan Lake Shore, the gauge being 4 ft. 9 1/2 in. on each; the Hecla & Torch Lake, where it is 4 ft. 1 in.; and the Mineral Range, on which it is three feet. The two latter roads are in the Upper Peninsula, and the bulk of their tonnage is in ore, lumber, and forest products.

ACCIDENTS TO PERSONS.

The list of accidents to persons is evidently much nearer correct than that of last year. Two hundred and fifty-seven are reported, of which 37 per cent. (94) were fatal. Forty per cent. (102) are said to have occurred from causes beyond the control of the victims, and 60 per cent. (155) from their own misconduct or carelessness. Fifty-four per cent. of all injured were employees (138); 26 per cent. were passengers (67), and 10 per cent. other persons (25). These latter comprise the greater part of that large class who are run over upon the track, and whose misfortune is generally their fault. Only five of the fifty-two reported are said to have suffered from causes beyond their own control, and an examination of the statements seems to indicate that in fact only one of these was absolutely blameless, and he was struck dead by a stick of wood falling from a passing tender. The other four appear to have been upon the track or to have been climbing about a car. So long as people are as criminally reckless of their safety as are those who will persist in walking upon railroad tracks, and in trying to cross tracks in front of coming trains, the number of accidents from this source cannot be expected to be diminished. The matter is made a subject of legislation in some States, and in the course of the present year, the New York Central Company, acting under a statute of 1850, which is said to have been for a long time dormant, arrested a woman for walking upon the track, the penalty imposed for such an offence being limited to a year's imprisonment, or to a fine of \$250. In this case, however, the Grand Jury declined to find a bill, on the ground that it was the duty of railroad companies that wished to enforce the law to put up notices in all conspicuous places, of such intent. But the practicability of punishing such carelessness as an offence is, perhaps, worth considering. Table XV. shows that the largest number of accidents to individuals classifiable under any one cause—fifty-seven—more than 20 per cent. of the whole—arose from their "being upon the track." Of these fifty-seven, 20 were employees and 37 other persons. Of them all only five of the killed and three of the injured appear to have been hurt

at railroad and highway crossings. It is beyond question the most irrational of all causes that contribute to death and injury from railroads, as it is hardly possible to conceive of a case in which it could not be avoided. If the table is a fair guide, it is plain that the black list of railroad injuries might be reduced one-fifth by simply keeping off the tracks. Whatever inconvenience this would involve to individuals, it cannot be set up against the risk to human life, and for the benefit of the habitually reckless, it might be worth while to put a premium on the cultivation of common sense by punishing the want of it. So far as the crossing of tracks is concerned, it will be observed that in reply to an invitation for suggestions with regard to securing safety at crossings, this policy is suggested by the Fort Wayne, Jackson & Saginaw Railroad Company in the words, "Enact a law compelling all persons to stop and see that it is safe before crossing a railroad track" (Returns, p. 72), and "reasonable care" on the part of the public is made a condition of safety by the replies of the Detroit, Lansing & Lake Michigan (Returns, p. 54) and the Flint & Pere Marquette railway companies (Returns, p. 62). If left to municipal ordinances, the difficulty will be met only in localities, and to a comparatively small degree; indeed, the inducement to use the track as a footpath is greater in the country where other conveniences are lacking.

A kindred folly to that of walking upon the track—perhaps a greater one—is that of attempting to get on or off from moving trains. This is nearly as unreasonable an experiment as the other, and if sternly prevented, as it is in England and on the continent, would have saved another tenth of the casualties happening in this State last year. Just half of this class of attempts reported this year were fatal. As was not unnatural, twice as many passengers suffered from this cause as employees, though there is reason to believe that there is a great deal of unnecessary carelessness in this direction among the latter. It is observed that there is, in Detroit, an occasional attempt to enforce a municipal ordinance against this folly, but it does not seem, even there, to be resorted to, except in the cases of small boys. Injuries to persons from this cause are not usually "accidents," in the true sense of the word, because they cannot be classed as arising from causes beyond their own control, and in this State, during 1873, it was practically the only source from which injuries to passengers arose—except, of course, those which came from collisions and the running of trains from the track. From these latter causes came 26 per cent. of all casualties reported, and 20 per cent. of them were among passengers.

By far the most prolific of any one source of disaster to employees was the coupling of cars. Forty-eight of the 49 persons so injured were employees—19 per cent. of the whole number of persons reported hurt. "Coupling," "switching," and "falling from train" were responsible for 32 per cent. of all casualties, and all but three of those so hurt were employees.

An examination of the tables shows the fact, that may be of statistical value, that for every passenger killed there were three outsiders and four employees, while of those merely injured the ratio was somewhat different, there being for every five passengers, only two outsiders, but nine employees. Presented in still another form, one-fifth of the accidents to passengers proved fatal; one third of those to the employees, and five-eighths of those to all others; from which it appears that those actually connected with trains as passengers or employees were proportionally safer from mortal injury than those who were not so connected. And a general inspection of the accident tables furnishes another convincing indication that the death-rate of humanity might be considerably lessened, if it were not for the recklessness of individuals.

The most destructive railway accidents that occurred in Michigan during 1873, and the only ones requiring special mention, happened upon the Detroit & Milwaukee Railroad. Near Muir, on the morning of the 29th of August, an express train was stopped upon the track by the loss of a driving wheel, in consequence of a broken axle. A brakeman was sent back to flag a coming freight train, but did not go back far enough, and the freight train, which was on a down grade, struck the rear of the express train and killed four passengers, injuring fourteen more. The brakemen had been ordered by the conductor to go back farther—the conductor saying that he was not back half far enough—although it afterwards appeared by actual measurement that he had really gone back the 800 yards required by the rules of the company. The freight engine was reversed, and the brakes applied, but even this distance proved insufficient, and the collision took place. An investigation followed, and the coroner's jury found the brakeman criminally guilty of disobeying the orders of the conductor, in that after he had gone back further, he returned when the conductor was out of sight. The jury also found the conductor, engineer and two brakemen of the freight train "guilty of criminal negligence, the engineer of running at much greater rate of speed than the rules of the railroad company allow, the conductor for not having the brakemen at their posts, and said brakemen for not being at their posts." The brakeman who had been charged with flagging the train escaped to Canada; the engineer and the two brakemen of the freight train were arrested under the law punishing the violation by a railroad employee of the rules of his company; the brakemen were tried and discharged, and the engineer was discharged without trial, it being apparent that he could not be convicted under the evidence. Expert testimony before the jury showed, however, that the standard distance of 800 yards at which a coming train is to be flagged is often insufficient, especially where the train is heavy, the grade inclined, and the track wet and slippery. The propriety of establishing a safer regulation may deserve consideration.

The other accident referred to took place near Lowell, on the evening of the 15th of September. Fourteen persons were injured, four of whom died, the train being thrown from the track by running over a cow which had broken through the fence and got upon the track. The accident, as the coroner's jury pronounced, was "unavoidable so far as the employees of said train were concerned."

Train Accidents in November.

On the morning of the 2d, on the Boston, Hartford & Erie road, near Boston, Mass., 20 cars of a gravel train were thrown from the track and wrecked.

On the morning of the 2d, on the Columbus & Hocking Valley road at the Scioto Bridge near Columbus, O., a coal train was thrown from the track by a misplaced switch, wrecking a number of cars and knocking down one span of the bridge.

On the night of the 2d, as a freight train on the New Jersey Midland was crossing the bridge over the Passaic at Dundee, N. J., the boom of the derrick on a derrick car which was in the train broke loose and swung round against one of the trusses of the bridge, knocking it down and breaking two span. Four cars went into the river and were wrecked, and two others were thrown from the track.

On the morning of the 3d, a car of a freight train on the Port Royal road caught fire and six cars loaded with cotton were burned.

On the 3d a freight train on the Quincy, Alton & St. Louis road ran over a stone which had rolled on the track at Sec-horn, Ill., ditching three empty flat cars.

On the afternoon of the 3d a passenger train on the Memphis & Little Rock road ran off the track at Hill's Lake, Ark., the engine and baggage car upsetting. The engineers and fireman were badly scalded.

On the morning of the 4th, as a west bound passenger train

on the Little Miami road was going on a siding at Alton, O., the engine jumped the track at a defective frog, dragging after it the baggage and smoking cars.

On the 4th, on the New Haven, Middletown & Willimantic Railroad near Northfield, Conn., there was a butting collision between an extra passenger and a freight train by which both engines and several cars were wrecked and Superintendent Bishop badly hurt. The Railroad Commissioners were on the special train, making their annual inspection of the road.

On the 4th, at Kewanee, Ill., on the Chicago, Burlington & Quincy Railroad, an empty car running down from the coal chute ran into the head of a way freight train, damaging the engine considerably.

On the 4th there was a butting collision between two locomotives in the Delaware, Lackawanna & Western yard at Hoboken, N. J., by which both were damaged.

On the morning of the 5th, on the Grand Rapids & Indiana Railroad near Moline, Mich., the rear passenger and a sleeping coach were thrown from the track by a broken axle. Both cars were badly wrecked, one passenger killed and sixteen badly hurt.

On the morning of the 5th, in Indianapolis, Ind., there was a crossing collision between an Indianapolis, Cincinnati & Lafayette and an Indianapolis & St. Louis engine, damaging the latter considerably.

On the 5th, a sleeping car in a train of the Georgia Railroad took fire near Stone Mountain, and was entirely destroyed with the exception of the trucks. The passengers, one of whom was Mr. John P. King, President of the company, lost most of their clothing and baggage.

On the morning of the 6th, the second section of a freight train on the Toledo, Wabash & Western road ran into the rear of the first section as it was going on a siding at Buck Creek, Ind. Several cars were badly broken, a conductor killed and a brakeman fatally injured.

On the afternoon of the 6th, some cars of a freight train on the New York Division of the Pennsylvania Railroad were thrown from the track at Schenck's, Pa., by a misplaced switch, and one man was caught between two cars and killed.

On the evening of the 6th, as a passenger train on the New York Division of the Pennsylvania Railroad was entering the depot in Jersey City, it ran into a yard engine which was just coming out. Both engines were much damaged.

On the morning of the 7th, on the Erie Railway in Paterson, N. J., a tie fell from a flat car of a freight train and got under the wheels of the following car, throwing three cars from the track.

On the 7th a train on the Mobile & Girard road was thrown from the track near Union Springs, Ala., by obstructions placed on the track for that purpose. The engineman and fireman were hurt.

On the 7th the engine of a construction train on the North Pacific Coast road was thrown from the track near Olema Bridge, Cal., at a place where the road bed had been washed out by a heavy rain.

On the 7th, on the European & North American Railroad, at McAdam Junction, N. B., there was a butting collision between two trains by which both engines were badly damaged. It was caused by a misplaced switch.

On the morning of the 8th a train on the Chicago, Rock Island & Pacific road ran over a cow at Homestead, Ia., and one car was thrown from the track and upset, injuring five persons and damaging the car badly.

On the afternoon of the 9th, a locomotive on the Lake Shore & Michigan Southern road ran off the track at the North Water street crossing in Cleveland, O.

On the night of the 9th, a car of a freight train on the Kansas Pacific jumped the track near Manhattan, Kan., and ran on the ties nearly a mile when a wheel caught and three others were thrown from the track, blocking the road for several hours.

On the morning of the 10th, in Indianapolis, Ind., there was a butting collision between an Indianapolis, Cincinnati & Lafayette freight train and an Indianapolis, Bloomington & Western yard engine, by which both engines were badly damaged.

On the 10th, on the Central Pacific east of Truckee, Nev., a car of a freight train ran off the track, blocking the road five hours.

On the 10th, on the Central Pacific road near Boca, Nev., the caboose and one car of a freight train broke loose from the train on a down grade and afterwards ran into the rear of the train as it was slackening speed at Boca Station. The cars were somewhat damaged and two people in the caboose were badly hurt.

On the night of the 10th, at St. Hilaire, P. Q., there was a butting collision between a freight and a passenger train on the Grand Trunk road by which both engines were badly wrecked and two persons injured.

On the morning of the 11th, an east-bound passenger train on the Toledo, Peoria & Warsaw road was thrown from the track by a broken rail $2\frac{1}{2}$ miles east of Hamilton, Ill., three cars leaving the track and two of them upsetting. The baggage-man was badly hurt by a box falling on him. The track was badly torn up and the road blocked near a whole day.

On the evening of the 11th, a train on the Brunswick & Albany road ran over a bull near Isabella, Ga., and two box cars, a baggage and a passenger car were thrown from the track and wrecked. The conductor and five passengers were hurt.

On the morning of the 12th, a car of a passenger train on the Indianapolis, Peru & Chicago road was thrown from the track in Indianapolis, Ind., by a broken rail.

On the night of the 12th, on the Burlington, Cedar Rapids & Minnesota near Morning Sun, Ia., there was a butting collision between a passenger and a freight train by which both engines were badly wrecked, the road blocked 16 hours and the engineman of the passenger badly hurt. The accident is said to have been caused by the carelessness of the freight conductor, who, while stopping at Wapello, took the time of the passenger from the wrong column of the time card and thought he had time to run to the next station.

On the night of the 12th, near Shabbona, Ill., on the Chicago & Iowa Railroad, two detached cars got started on a grade and ran down it and into a locomotive, whose cab was demolished by the collision.

On the morning of the 13th, on the St. Joseph & Topeka road, near Achison, Kan., a freight train was thrown from the track, blocking the road half a day.

On the 13th, at Bluffs, Ill., on the Toledo, Wabash and Western road the engine and two cars of a freight train were thrown from the track by a misplaced switch. Trains were delayed several hours.

Very early on the morning of the 14th, on the Chicago & Northwestern road, near Chemung, Ill., a freight train broke in two and the rear section afterwards ran into the forward one damaging several cars and killing a brakeman.

Early on the morning of the 14th two cars of a freight train on the Atlantic, Mississippi & Ohio road were thrown from the track near Buford's, Va., by a broken rail and a number of cattle, which were in the cars, were killed. The road was blocked four hours.

On the 14th a coal train on the Indianapolis & St. Louis road had several cars thrown from the track near Indianapolis, Ind., blocking the road two hours.

On the 14th, on the Penn. Gas Coal Company's road at Cowansburg, Pa., a car broke loose from a train and, running back down a heavy grade, jumped the track at a curve and was badly broken.

On the night of the 15th five cars of a freight train on the Boston & Albany road were thrown from the track and wrecked near Grantville, Mass.

On the night of the 15th a train on the Georgia Railroad struck a broken rail near Covington, Ga., and the whole train passed over in safety except the sleeping coach, which left the track and went down a high bank, turning over twice before it reached the bottom. The car was badly broken.

On the morning of the 16th a car of a passenger train on the Denver & Rio Grande Railroad were thrown from the track near Colorado Springs, Col., by a loose wheel. The car went down the bank and was badly damaged.

On the 16th, on the Dayton and Michigan road, near Perrysburg, O., as a construction train was running backwards it ran over a steer, throwing one car from the track. The car upset, crushing three men beneath it, killing two and injuring the third so that he died soon after.

On the 16th, a shifting engine on the European & North American road ran into some cars at Bangor, Me., and the engine, two passenger and a freight car were badly damaged.

On the afternoon of the 16th, a train on the Berks County road ran over a cow at Lynport, Pa., throwing one car from the track.

On the evening of the 16th, a west-bound freight train on the New York Division of the Pennsylvania road broke in two as it was approaching the bridge over Rahway River, N. J., and the rear section was thrown from the track, two cars going into the river and being badly broken up.

Very early on the morning of the 17th, near Winona Switch, Ill., a coal train on the Belleville & Southern Illinois road ran into some coal cars which had been run out of a siding upon the main track, smashing up several cars. A large stick of timber was found fastened in a cattle-guard nearby, and it is believed that both obstructions had been placed by striking miners.

On the morning of the 17th, on the Cleveland, Columbus, Cincinnati & Indianapolis near Hughes' Station, O., there was a butting collision between a passenger and a freight train, by which both engines were disabled and the road blocked three hours.

On the evening of the 17th, a train on the Memphis & Little Rock road was thrown from the track near Brinkley, Ark., by a broken rail. Two cars were overturned and two men injured.

On the evening of the 17th, in Buffalo, N. Y., a Lake Shore & Michigan Southern freight train ran into the rear of a New York Central & Hudson River freight, breaking up two cars and damaging the Lake Shore engine.

On the morning of the 18th, six cars of a freight train on the Eastern Railroad broke loose from the train near Salisbury, Mass., and ran back down grade and into the head of a following passenger train, completely wrecking the engine and injuring the engineman. The cars were thrown from the track and broken up, and the wreck caught fire and was entirely burned up.

On the afternoon of the 19th, on the New York Central & Hudson River, in Utica, N. Y., a wild engine ran into the rear of a local freight, doing considerable damage.

On the afternoon of the 19th, near Alma, Ill., on the Ohio & Mississippi road, an express train ran into some cars which had broken loose from a coal train and were standing on the track. The express engine and several of the coal cars were wrecked.

On the morning of the 20th, on the Southwestern Division of the Chicago, Rock Island & Pacific, near Brighton, Ia., a freight train was thrown from the track, blocking the road five hours.

On the afternoon of the 20th, in Utica, N. Y., a passenger train on the Utica Branch of the New York & Oswego Midland road was thrown from the track at the draw-bridge over the Erie Canal, the draw being so far displaced that the train did not strike the rails as it ran upon it.

On the night of the 20th, an engine on the Indianapolis & St. Louis road was thrown from the track and the engineman injured.

On the night of the 20th, on the Atlantic & Gulf road, near Savannah, Ga., a car of a passenger train was thrown from the track by a broken rail.

On the morning of the 21st, on the Indianapolis, Bloomington & Western road near Jamestown, Ind., 15 cars of a freight train were thrown from the track, blocking the road several hours.

On the 21st, on the La Crosse Division of the Chicago, Milwaukee & St. Paul, near Milwaukee, Wis., a freight train had five cars thrown from the track by a broken rail, and the conductor hurt.

On the night of the 21st, near Joliet, Ill., a passenger train on the Chicago & Alton road was thrown from the track by the spreading of the rails.

On the morning of the 22d, as an Illinois Central switching engine was running down the levee at Cairo, Ill., one of the cylinder heads was blown out.

On the evening of the 22d, a passenger train on the Memphis & Charleston road ran into Spring Creek, near Tusculum, Ala., where a bridge had been carried away a short time before by a violent storm. The engine, baggage-car, and one coach went down into the creek, badly injuring the engineman, fireman, and baggage-master. An attempt was made to signal the train, but failed on account of the storm.

On the night of the 22d, the sleeping coach of a train on the Houston & Texas Central road jumped the track near Navasota, Tex., and went down a bank 20 feet high. The coach was wrecked and ten persons more or less injured.

On the morning of the 23d a freight train on the Terre Haute & Indianapolis road was thrown from the track near Greencastle, Ind., blocking the road three hours.

On the morning of the 23d an engine on the Boston & Maine road was thrown from the track near Stoneham, Mass., by a broken axle, delaying the train about an hour.

On the morning of the 23d as a train on the Davenport & St. Paul road was being run into the depot at Maquoketa, Ia., by a flying switch, the switch caught fast just after the engine had passed over it, and before it could be turned the train came up and ran into the rear of the engine. The tender and several cars were damaged, and three men somewhat hurt.

A little after nine o'clock on the morning of the 23d the south-bound Washington express on the New York Division of the Pennsylvania Railroad ran into a coal train on the Central Railroad of New Jersey at the crossings of the two roads at Elizabeth, N. J. The Pennsylvania engine went through the coal train wrecking several cars, and was thrown so far from its own track that it ran into the engine of a train standing on the north-bound Pennsylvania track, damaging the front of it considerably. Both roads were blocked for over an hour. The track was very wet and slippery, and it is said the brakes on the Pennsylvania train would not hold it. It is also reported that the air brakes failed to work.

On the 23d the engine of a passenger train on the Kansas Central road was thrown from the track near Leavenworth, Kan.

On the 23d a train on the Memphis & Little Rock road was thrown from the track at Widener's Tank, Ark., and the engine went down a bank, killing the engineman.

On the evening of the 23d a Grand Trunk passenger train was thrown from the track in Buffalo, N. Y., at a place where the track had been washed out by a violent storm.

Early on the morning of the 24th, on the Indianapolis, Bloomington & Western road, at Gillam, Ill., an express train was thrown from the track by a misplaced switch, the engine, tender and baggage car going into the ditch and upsetting. The fireman was killed and the engineman injured. A freight

train had just gone on the siding and the trainmen had neglected to close the switch.

On the 24th, the dummy engine of the Hyde Park train on the Illinois Central road, jumped the track near Hyde Park, Ill., and upset. The engineman was scalded to death and a passenger badly hurt.

On the evening of the 24th, the engine and baggage car of an east-bound passenger train on the Central Pacific were thrown from the track by a misplaced switch at Sunol, Nev., and the fireman was badly hurt.

About noon on the 25th, as a passenger train on the Rome, Watertown & Ogdensburg was approaching Taberg, N. Y., the strap on the forward end of the connecting rod broke and the piston on the forward stroke knocked out the front cylinder head, disabling the engine.

Late on the night of the 25th, on the Baltimore & Ohio road near the Relay House, Md., an express train ran into a drove of horses, killing a number of them and throwing the engine from the track, delaying the train two hours. The engineman jumped and was badly hurt.

On the 26th there was a collision between a Hannibal & St. Joseph passenger engine and a Missouri, Kansas & Texas switching engine at the crossing of the two roads in Hannibal, Mo., by which both engines were thrown from the track and the approach to the bridge across Bear Creek was damaged.

On the 27th, a construction train on the Mississippi Valley & Western road ran over a cow near Des Moines City, Mo., throwing the entire train from the track and wrecking the engine.

On the 27th, on the Visalia Division of the Central Pacific, near Turlock, Cal., there was a collision between two freight trains by which one engine was badly damaged and several cars wrecked.

On the night of the 27th, an engine on the Southern Minnesota road ran off the track at a misplaced switch at Grand Meadow, Minn. The engine went down a bank, upset and was badly broken.

On the morning of the 28th, near Elk Point, Dak., a freight train ran over a cow, throwing the engine and four cars from the track.

On the morning of the 28th two cars of a Chicago, Burlington & Quincy freight train jumped the track on the Burlington bridge, causing some delay to trains.

On the afternoon of the 30th, as two passenger trains on the Northern Central road were crossing at the same time and in different directions the bridge over Lake Roland, six miles north of Baltimore, Md., the bridge gave way, breaking at both ends. Both tenders, both baggage cars and two passenger cars went down into the lake. Two men in one of the baggage cars were killed by the falling baggage and six passengers were hurt. The bridge was a Pratt truss, 80 feet span, and had been lately inspected and pronounced in good order.

On the afternoon of the 30th six cars of a coal train on the New York Division of the Pennsylvania Railroad were thrown from the track at Monmouth Junction, N. J., blocking the road two hours.

This is a total of 82 accidents, by which 13 persons were killed and 69 wounded. Nine accidents caused the death of one or more persons, 18 others injury, but not death, and 55, or over 67 per cent. of the whole caused no serious injury to any person.

These accidents may be classified as to their nature and causes as follows:

COLLISIONS.		
Rear collisions.....	10	
Butting collisions.....	9	
Crossing collisions.....	3	
Unexplained.....	1	23
DERAILMENTS.		
Unexplained.....	20	
Accidental obstruction.....	11	
Broken rail.....	7	
Misplaced switch.....	6	
Broken bridge.....	3	
Malicious obstruction.....	2	
Broken axle.....	2	
Defective frog.....	1	
Loose wheel.....	1	
Spreading of rails.....	1	
Displaced draw.....	1	55
Cars burned while running.....	2	
Cylinder head blown out.....	1	
Broken connecting rod.....	1	
Total.....	82	

Three collisions are recorded as being caused by the breaking in two of trains, two by misplaced switches, one apparently by lack of or neglect to use signals, and one is, if correctly reported, a very gross case of carelessness. The proportion of derailments to which no cause is assigned is unusually large, and it is almost certain that several of them are the result of undue economy in maintenance of track and road-bed.

The number of misplaced switches is still large enough to indicate much carelessness among train and station men. Broken rails have increased largely in numbers and cannot be accounted for by any unusual severity of the weather, which was almost everywhere more than commonly mild for November. Of the three broken bridges one was carried away by a violent storm, one knocked down by a derrick car, while the third appears to have given way under an unusual load. The proportion of rear collisions has fallen from one-fifth to one-eighth of the whole number of accidents. Of the accidental obstructions seven were caused by cattle running on the track. Twenty accidents were caused by defects or failures of road or equipment.

The number of accidents is nearly the average for the year and has been exceeded in six months out of the twelve. The number of killed is a little below and of injured above the average. As compared with November of last year there is an increase of six accidents, the number of killed is greater by two and of injured by 19.

For the year ending with November the record is as follows:

	No. of accidents.	Killed.	Injured.
December.....	90	16	43
January.....	108	18	69
February.....	90	25	49
March.....	88	13	42
April.....	69	3	31
May.....	89	19	55
June.....	83	22	104
July.....	64	20	77
August.....	73	16	125
September.....	69	27	60
October.....	61	14	69
November.....	82	13	72
Totals.....	986	208	712

The averages per day for November are 2.73 accidents, 0.43 killed and 2.30 wounded; for the year they are 2.70 accidents, 0.57 killed and 2.12 wounded. The averages for the month are thus slightly above those for the year, except in the number of killed, which is about one-quarter less.